



Arklow Bank Wind Park 2

Environmental Impact Assessment Report

Volume III, Appendix 12.16: Offshore Ornithology Technical Report
- Wicklow Head Seabird Monitoring (RFI March 2026)

Arklow Bank Wind Park 2 (ABWP2)

Wicklow Head Ornithology Survey Report



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Expert	Qualifications	Experience
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Acronyms

Term	Definition
ABWP2	Arklow Bank Wind Park 2
AON	Apparently Occupied Nests
AOS	Apparently Occupied Sites
AOT	Apparently Occupied Territories
ASL	Above Sea Level
HSA	Habitat Suitability Assessment
HWM	High Water Mark
IND	Individuals
NPWS	National Parks and Wildlife Service
OSP	Offshore Substation Platform
OWF	Offshore Wind Farm
SMP	Seabird Monitoring Programme
SPA	Special Protection Area
UK	United Kingdom
VP	Vantage Point
WTG	Wind Turbine Generator



Executive Summary

This report provides an overview of the baseline environment at Wicklow Head Special Protection Area (SPA), outlining the current status of the seabird population at the colony. This comprises the seabird monitoring Wicklow Head that has been undertaken during the 2018 to 2025 breeding seasons. Counts from 2018 to 2022 have been supplemented with data from the Seabird Monitoring Programme (SMP) Database (SMP, 2026) where full counts are not available from the original sources.

Wicklow Head SPA is designated for its nationally and internationally important black-legged kittiwake *Rissa tridactyla* (“kittiwake”) population (NPWS, 2012) as well as regionally important numbers of common guillemot *Uria aalge* (“guillemot”), Northern fulmar *Fulmarus glacialis* (“fulmar”), razorbill *Alca torda*, European shag *Phalacrocorax aristotelis* (“shag”) and black guillemot *Cephus grille* (NPWS, 2012). Herring gull *Larus argentatus* also regularly breed at the site (Tierney, 2022). Kittiwake were the target species for all surveys, but data from other species recorded during surveys are also presented herein, where available.

A series of surveys have been undertaken to monitor the status and health of the kittiwake colony at Wicklow Head since 2018, including colony census and productivity surveys. Disturbance surveys have been undertaken since 2023 given the location of the SPA and the high volume of visitors it receives. This has been undertaken on behalf of National Parks and Wildlife Service between 2018 and 2021 (Tierney, 2022), by NPWS in 2022 (NPWS, 2022), and on behalf of Sure Partners Ltd. between 2023 and 2025 (Cork Ecology, 2023; GoBe Consultants, 2024; GoBe Consultants 2025).

There are 15 kittiwake sub-colonies (SCs) at Wicklow Head, located in the central and southern sections of the SPA near the lighthouse compound (Figure 1.1; Figure 1.2). These 15 SCs were surveyed during the 2025 breeding season for kittiwake breeding population counts (i.e. the number of Apparently Occupied Nests (AONs)) via both land- and boat-based surveys. Of the 15 kittiwake sub-colonies at the SPA, two (SC5 and SC8) were also monitored for productivity (breeding success) in 2025. Anthropogenic disturbance levels around the kittiwake colony were also surveyed monthly between May and July 2025 for all SCs safely visible from land.

The 2025 kittiwake colony census of all 15 SCs at the Wicklow Head SPA resulted in a total of 1,077 AON, which represents an increase of 403 AON when compared to the 2018 census.

Common guillemot *Uria aalge*, European shag *Phalacrocorax aristotelis*, and razorbill *Alca torda* counts also increased in 2025. The 2025 totals included guillemots at 1,132 individuals (IND), 42 AON for European shag and razorbills at 493 IND compared to 650 IND, 20 AON, and 176 IND in 2018, respectively. Conversely, northern fulmar *Fulmarus glacialis* and herring gull *Larus argentatus* counts decreased in numbers in 2025 from the 2018 census.

Kittiwake productivity at Wicklow Head SPA declined from 0.84 ± 0.12 in 2018 to 0.48 ± 0.06 in 2025. However, 2024 was a particularly good year for kittiwake at the colony, with the third highest level of productivity since surveys commenced in 2018.



Monitoring of anthropogenic disturbance events was undertaken at Wicklow Head SPA from 2023 to 2025. In 2025, four anthropogenic disturbance events resulted in the highest response rating, i.e. causing flushing of kittiwakes from their nest for 30 seconds or longer. In 2025 these were caused once by a drone, a kayak on two separate occasions and once by a small vessel. Birds were also flushed from their nests as a result of natural events on 32 occasions, including as a response to the presence of predatory birds and seals at the colony.



1 Introduction

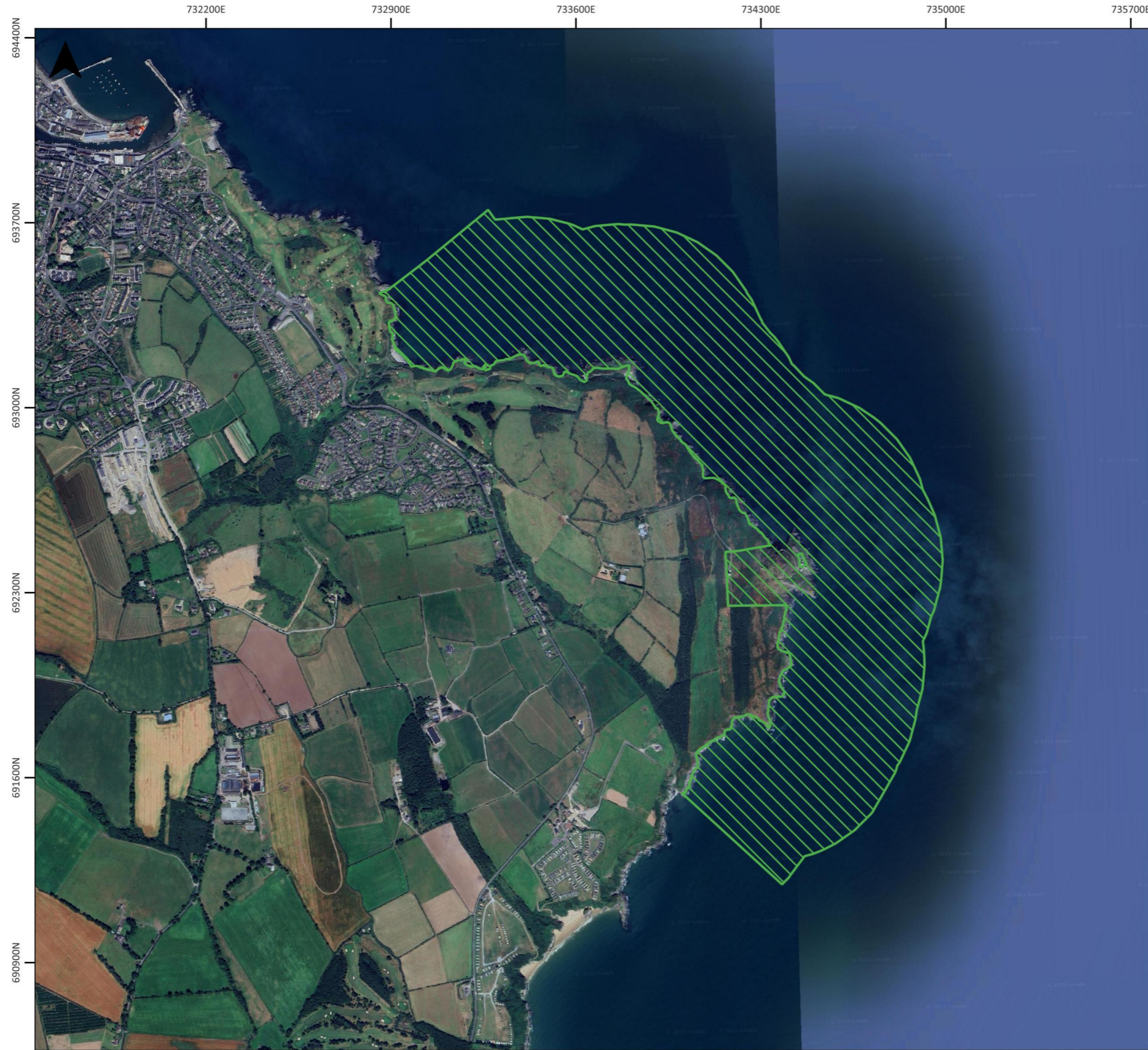
1.1 Document Scope

- 1.1.1 This report provides an overview of the seabird breeding colony health at Wicklow Head SPA during the 2018 to 2025 breeding seasons. A series of surveys were undertaken to monitor the status and health of the black-legged kittiwake (hereafter: kittiwake) colony at Wicklow Head since 2018, including colony census and productivity surveys. Disturbance surveys were also undertaken from 2023 to 2025 to better understand pressures on the colony given the location of the SPA and the high volume of visitors it receives.
- 1.1.2 This report presents trends from the past eight years in kittiwake productivity and colony dynamics at Wicklow Head SPA. The updated 2025 survey results, combined with data from earlier years, provide a robust baseline for assessing long-term patterns and pressures on the colony. The 2025 colony-monitoring survey results are also presented in full. These 2025 survey results accompany the baseline results presented for Wicklow Head SPA from 2018-2021 (Tierney, 2022), 2022 (NPWS, 2022), 2023 (Cork Ecology, 2023) and 2024 (GoBe, 2024). Note that counts from 2018 to 2022 have been supplemented with data from the Seabird Monitoring Programme (SMP) Database (SMP, 2026) where full counts are not available from the original sources.

1.2 Colony Description

- 1.2.1 The north-western boundary of the Wicklow Head SPA lies adjacent to the town of Wicklow, Co. Wicklow. The SPA extends southward for approximately 3.3 km around the Wicklow Head headland (Figure 1.1) which consists primarily of sea cliffs that peak at approximately 60 m in height (National Parks and Wildlife Service (NPWS), 2012). The Wicklow Head SPA was designated in 2002 and includes the nearshore marine area up to a distance of 500 m seaward from the base of the cliffs (NPWS, 2012), with the total SPA area spanning 1.85 km² (185.05 ha) (Natura2000, 2020).
- 1.2.2 Wicklow Head SPA is designated for its nationally and internationally important kittiwake population (NPWS, 2012). In addition to this qualifying feature the site also regularly hosts other breeding seabirds including fulmar, shag, herring gull, guillemot and razorbill (NPWS, 2012).
- 1.2.3 Kittiwake nest across 15 sub-colonies (SCs) at Wicklow Head, in the central and south sections of the SPA near the lighthouse compound (Figure 1.2). The kittiwake colony at Wicklow Head SPA was established between 1969 and 1974 (Merne, 1988) and at the time of SPA designation in 2002, Wicklow Head supported 956 breeding kittiwake pairs (NPWS, 2012). There has been a decline in recent years, with 645 AON recorded in 2023, a decrease of 29 AON from 2022 and 128 AON fewer than in 2019 (Cork Ecology, 2023). In 2024, an increase of 206 AON was seen at the site compared with 2023, with a total of 851 AON reported (GoBe, 2024). Recent monitoring of the breeding population at this site has been carried out by Sure Partners Ltd in connection with Arklow Bank Wind Park 2, with monitoring between 2018 and 2021 carried out by the National Parks and Wildlife Service (NPWS).





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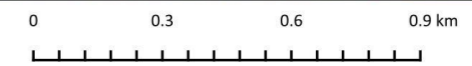
**Wicklow Head Ornithology Survey
Report 2025**

P17702

Wicklow Head SPA Location

Legend

 Wicklow Head SPA



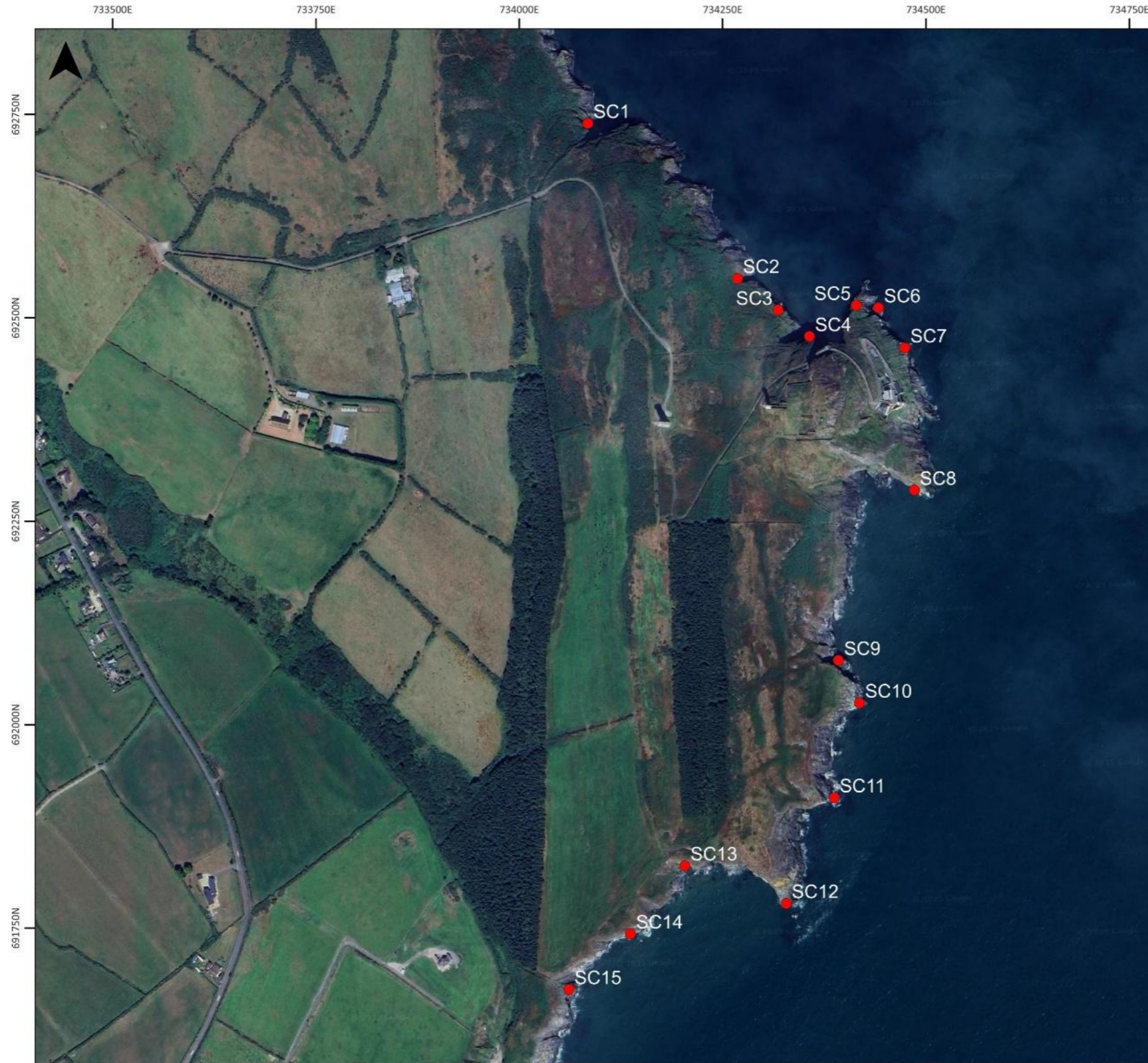
Scale: 1: 19,750 Date: 23/07/2025 Drawn by: MRO

Coordinate System:
IRENET95 / Irish Transverse
Mercator

Basemap: Google Earth Satellite © URL:
<http://mt0.google.com/vt/lyrs=s&hl=en&x={x}&y={y}&z={z}>

Figure 1.1: Wicklow Head SPA Location





Wicklow Head Ornithology Survey
Report 2025

P17702

Wicklow Head SPA Kittiwake Sub-colony
Locations

Legend

- Kittiwake sub-colonies



0 0.1 0.2 0.3 km

Scale: 1: 6,500 Date: 23/07/2025 Drawn by: MRo

Coordinate System:
IRENET95 / Irish Transverse
Mercator

Basemap: Google Earth Satellite © URL:
<http://mt0.google.com/vt/lyrs=s&hl=en&x={x}&y={y}&z={z}>

Figure 1.2: Wicklow Head SPA Kittiwake Sub-colony Locations



2 Methodology

2.1 Previous Surveys (2018-2024)

- 2.1.1 NPWS monitored the seabird colony at Wicklow Head between 2018 and 2021 to estimate the breeding population and kittiwake productivity (Tierney, 2022; NPWS 2022). Standard survey methods were used from 2018 to 2021, as outlined in the Seabird Monitoring Handbook (Walsh *et al.*, 1995). Population census counts were made exclusively from land due to budget constraints. Productivity was monitored at five kittiwake sub-colonies between 2018 and 2022: SC1, SC2, SC4, SC8 and SC13.
- 2.1.2 During the 2023 breeding season, a seabird survey and monitoring programme for Wicklow Head SPA was undertaken by Cork Ecology on behalf of Sure Partners Ltd (Cork Ecology, 2023). Cork Ecology carried out a census of the Wicklow Head seabird population and undertook kittiwake productivity monitoring, as well as noting feeding frequency and parental nest attendance (“nest monitoring”). Standard species-specific survey methods were used, as outlined in the Seabird Monitoring Handbook (Walsh *et al.*, 1995). Counts were undertaken at all 15 sub-colonies shown in Figure 1.2. Due to early breeding failures at SC2 and SC13 in 2023, additional productivity monitoring subsequently took place at SC5 and SC10 (Cork Ecology, 2023), bringing the total number of SCs surveyed for productivity and nest monitoring in 2023 to seven. In addition to the census and productivity surveys undertaken by Cork Ecology, disturbance data were also gathered.
- 2.1.3 In 2024, Sure Partners Ltd commissioned further monitoring work which was undertaken by GoBe. The 2024 surveys built on the survey work conducted by Cork Ecology in 2023 and the visitor disturbance monitoring work in 2023. A census of the breeding seabird species, together with productivity, and a Habitat Suitability Assessment (HSA) for kittiwakes (results presented below) and disturbance monitoring surveys were undertaken in 2024 (GoBe, 2024). In addition, invasive and non-native species (invasive alien species) presence/ absence surveys at the Wicklow Head SPA were also commissioned, with the results presented in APEM (2024).
- 2.1.4 As recommended following the 2023 study (Cork Ecology, 2023), the duration of the kittiwake nest monitoring surveys in 2024 were increased from three to six hours to record more detailed information on adult changeover and feeding rates. Additionally, the productivity surveys were expanded from seven SCs in 2023 to cover 10 SCs in 2024 (all those with adequate visibility from land to undertake productivity monitoring) to maximise data collection. Full colony counts were conducted between late May and mid-June 2024 targeting kittiwake, fulmar, shag, herring gull, guillemot and razorbill, with other species nesting also recorded (great black-backed gull, black guillemot, kestrel, peregrine and shelduck).
- 2.1.5 Full colony census and productivity monitoring results from 2023, 2024 and 2025, along with full disturbance survey results from 2024 and 2025, are presented in Appendices A-C.



2024 Kittiwake Habitat Suitability Assessment results

- 2.1.6 The SCs were found to vary greatly in their characteristics in terms of nest space availability, protection from the elements and predators. The findings for each SC are summarised below.
- 2.1.7 SC1 is a large SC with a north-easterly aspect spread over a wide area of low cliff. The largest clusters of nests are situated within a recessed gully with an overhang providing good protection from the elements. These clusters were observed to have higher productivity than outlying nests. The sub-colony is vulnerable to disturbance from walkers, and evidence was found of water encroachment on nests during the second visit with some lower nests washed away around the high tide mark. Many other nests are located less than 5m from the water, leaving them vulnerable during storms.
- 2.1.8 SC2 is a small SC with nests facing both north and east. Some nests are well sheltered within a gully, while those closest to the top of the cliff are encroached on by vegetation, making them vulnerable to ground predators.
- 2.1.9 SC3 is another small SC with an easterly aspect very exposed to weather from this direction. However, the bulk of the nests are clustered along ledges with an overhang providing protection from above. There is little suitable nesting habitat which was unoccupied.
- 2.1.10 SC4 is a large SC with a north-easterly aspect with nests clustered above a sea cave. The sub-colony is well protected from the elements. Vegetation encroachment was noted as an issue for upper nests. The majority of available, suitable nesting habitat was occupied.
- 2.1.11 SC5 is a large SC with nests mostly concentrated along a low section of cliff facing north-east close to a jetty/pier, which has been noted as a cause of disturbance. With the lowest nests only 2-3m above the water, these are also potentially at risk from storms. There are further scattered nests on a more exposed section of cliff higher up, which are noted to have lower productivity due to their isolation. This SC was previously one of the “busiest” sub-colonies at Wicklow Head (e.g. Cork Ecology, 2009).
- 2.1.12 SC6 is a large SC to the east and on the opposite side of the headland from SC5 on an east-facing cliff, on the eastern side of the jetty/pier. Some nests are close to the water and are potentially vulnerable to storms. As with SC5, the sub-colony is very close to the jetty/pier.
- 2.1.13 SC8 is another large SC facing south/east on a high section of cliff face, which is well protected from both the elements and predation and has suitable unoccupied nesting habitat. Higher productivity was observed in clustered nests, with outlying nests more exposed to the elements and predation. The presence of peregrines was noted as a potential threat to outlying nests in particular.
- 2.1.14 SC10 is a large SC with the majority of nests concentrated on a north-east facing rock face with the majority of available ledges occupied in this area. Lower productivity was noted at lower nests, which are vulnerable to wave action and storms.
- 2.1.15 SC11, SC12 and SC13 are small sub-colonies with south-easterly aspects, leaving them exposed to winds from this direction. There are few established nest sites at these SCs due to a lack of suitable ledges in the more sheltered parts of the cliff face.



2.2 2025 Surveys

2.2.1 Further monitoring was led by GoBe in 2025 on behalf of Sure Partners Ltd. This comprised ground truthing, colony census and monitoring of productivity and disturbance of kittiwakes.

Surveyors

2.2.2 The 2025 surveys were undertaken by Eric Dempsey, Niall Keogh, Marc Ruddock, Paul Connaughton, Cian Cardiff and/or members of their survey teams. All surveyors are experienced, high quality professional ornithologists with an in-depth knowledge both of Ireland's bird species (including abundance, distribution and conservation status), environmental legislation pertaining to birds in Ireland, the Walsh *et al.* (1995) seabird monitoring guidance and have years of experience including past experience surveying at Wicklow Head. Where needed, additional surveyors were required on an *ad-hoc* basis throughout the survey programme and provided by Cian Cardiff and Marc Ruddock from their respective pools of team members based on the east coast of Ireland. These surveyors were Hilary White, Dougie Ruddock and Alan Ferguson.

Ground Truthing

2.2.3 A ground truthing visit to Wicklow Head SPA was undertaken on 25th May 2025 to;

- Confirm access;
- Highlight any health and safety issues that may have arisen since the 2024 survey programme;
- Ascertain that the proposed locations for the Vantage Points (VPs) still provide adequate visibility of the kittiwake sub-colonies; and
- Inform the 2025 survey schedule by confirming that kittiwake were present and on nests at the colony.

2.2.4 The date of 25th May was appropriate for a scoping visit, with kittiwake egg laying generally commencing in early June (Hatch *et al.*, 2020). As such, the timing of the scoping visit allowed for suitable time between the scoping and the commencement of the monitoring.

Survey Methods

2.2.5 A full colony census of the breeding seabird species at the Wicklow Head SPA was undertaken in 2025, as well as kittiwake disturbance monitoring at all sub-colonies visible from land and productivity monitoring at SC5 and SC8 (**Figure 1.2**). Methods employed for the surveys are described in turn below.

Colony Census

2.2.6 Four colony census visits were undertaken during the 2025 breeding season to ascertain the status of the seabird population at the Wicklow Head SPA. Due to the topology of Wicklow Head, some SCs were only visible from land and others from the sea. As such, the surveys consisted of two land-based visits on 17th and 19th June 2025 and two boat-based visits on 5th and 17th June 2025. The colony census surveys were conducted according to the methodology presented in the Seabird Monitoring Handbook (Walsh *et al.*, 1995).



- 2.2.7 The census areas were clearly defined by SC and replicated those monitored in previous years. In addition, suitable nesting habitat along the extent of the SPA coast was checked to look for any newly established kittiwake sub-colonies. On individual cliff faces, especially where numbers of birds were high, the colony was sub-divided using obvious ledges, or other features, to avoid under or double counting, as outlined in Walsh *et al.*, (1995).
- 2.2.8 Eight SCs (SC1, SC2, SC4, SC5, SC8, SC11, SC12 and SC13) were fully visible from land, while SC6, SC7, SC14 and SC15 were only visible from the water and so were surveyed by boat.
- 2.2.9 Sub-colonies SC3, SC9 and SC10 were surveyed through a combination of land-based and boat-based surveys, as there were sections of these SCs that were not visible from land.
- 2.2.10 The final census totals reported herein are the highest reliable count of the whole colony for each species, inclusive of both land- and boat-based counts, as opposed to the sum of individual sub-colony peaks. This is the recommended approach in Walsh *et al.*, (1995).
- 2.2.11 In addition to kittiwake, all other seabird species utilising Wicklow Head during the 2025 breeding season were recorded using the applicable species-specific count units as per Walsh *et al.* (1995), as follows.

Kittiwake

- 2.2.12 The kittiwake population was censused by counting AON. An AON is defined by Walsh *et al.* (1995) as a well-built nest capable of containing eggs or chicks with at least one adult present. Although not all nests may contain eggs and juvenile birds can occupy abandoned or unattended nests, counting AONs is the most suitable count unit to use when surveying breeding kittiwake populations due to difficulties associated with confirming clutch size or lost eggs (Walsh *et al.*, 1995).
- 2.2.13 Trace nests (TRA) were also recorded and are defined as poorly built kittiwake nests, high proportions of which may indicate a late breeding season or a decrease in breeding adults (Walsh *et al.*, 1995). TRAs may also be a sign of nest failures (indicated by deterioration) when recorded late in the season.

Secondary species

- 2.2.14 The large gull (herring and great black-backed gull) and shag populations were also censused by counting AON. In line with the recommended guidance on count methodologies in Walsh *et al.* (1995) for herring and great black-backed gull, where nest presence could not be confirmed but the location/ spacing of individual birds or pairs appeared to indicate that they were holding territory, these were counted as Apparently Occupied Territories (AOT).
- 2.2.15 Fulmar were censused by counting Apparently Occupied Sites (AOS), with a nest site counted as occupied only when a bird appears to be sitting tightly on a reasonably horizontal area judged large enough to hold an egg, as defined by Walsh *et al.* (1995). Again, where a breeding attempt could not be confirmed but the location/ spacing of individual birds or pairs appeared to indicate that they were holding territory, these were considered as AOT in line with the guidance.
- 2.2.16 Due to the difficulty of defining breeding pairs of auk species, these species (guillemot, black guillemot and razorbill) were recorded by counting IND on land in line with the recommended guidance in Walsh *et al.* (1995).



2.2.17 Where present, non-seabird species (kestrel *Falco tinnunculus*, peregrine *Falco peregrinus* and shelduck *Tadorna tadorna*) exhibiting breeding behaviour were recorded as AOTs.

Productivity Monitoring

2.2.18 Additional to the colony census surveys, kittiwake SC5 and SC8 were monitored for productivity (breeding success), with as many nests monitored as possible that could be safely viewed and without causing undue disturbance to the nesting birds. The productivity monitoring was undertaken over three visits spaced throughout the breeding season, as presented in **Table 2.1**. See Section 2.2.28 for further details.

Table 2.1: Productivity monitoring survey visit dates

Sub-colony	Visit 1	Visit 2	Visit 3
SC5	06/06/2025	21/06/2025	03/07/2025
SC8	04/06/2025	21/06/2025	03/07/2025

2.2.19 The productivity monitoring methodology utilised was based on the *Productivity Monitoring Method 2 (comparison of nest- and chick-counts)* presented in Walsh *et al.* (1995), as follows:

1. The boundaries of each SC were clearly defined using those from 2023 and 2024 as a basis.
2. For the purposes of accurate counting, each SC was further divided by aspect and by using obvious ledges, fissures, or other features, to avoid under or double counting.
3. Notes were kept on sections of SCs or individual nests where views were obscured.
4. All AON safely visible were recorded, with details noted regarding the status of the nest contents as per Table 2.2 and the age of chicks as presented in Table 2.3.
5. Where clutch size or nest contents could not be confirmed due to health and safety risks or without disturbing nesting birds, the basic unit of a well-built nest, regardless of its contents, has been used as a measure of productivity.
6. Nests were numbered sequentially on a survey form with field and age codes for chicks, where applicable, as well as the state of each being noted on subsequent visits.

2.2.20 Incidental data on any nest failures, disturbance and predation events were also captured during each productivity survey visit.



Table 2.2 Codes used to categorise nest occupation (from Walsh *et al.*,1995).

Code	Nest occupation types
c/1	Clutch size of one egg
c/2	Clutch size of two eggs
c/3	Clutch size of three eggs
c/0	Occupied (adults present), but empty (no egg), well-built nest
c/x	Adult standing at well-built nest, contents unknown
i	Adult sitting tight on nest, apparently incubating
b/1	Brood size of one chick (noting age code where possible, as per Table 2.3)
b/2	Brood size of two chicks (noting age code where possible, as per Table 2.3)
b/3	Brood size of three chicks (noting age code where possible, as per Table 2.3)
/1	Trace nest with one adult present
/2	Trace nest with two adults present

Table 2.3 Codes used to categorise chick development (from Walsh *et al.*,1995)

Description	Code	Size category
Chick completely downy	a	Small (S)
Downy chick, but black tips on upper wing-coverts just visible	b	S
Clear grey or black pattern visible on upper side of wing, but still some down on upper wing, and mainly downy elsewhere	c	Medium (M) or M/S
No down on upper side of wings, some down elsewhere	d	Large (L) or M/L
No down visible, wing tips at least equal to length of tail	e	L
Wing tips 1-2 cm longer than tail	f	Considered likely to Fledge (F)
Wing tips 3-4 cm longer than tail	ff	Fully Fledged (FF)

2.2.21 Following the methods stated in Walsh *et al.* (1995), productivity rates herein are expressed as the sum of all chicks considered to have fledged divided by the sum of the peak AON counts from each SC. All large and medium chicks (as defined by Walsh *et al.*, 1995 and denoted c-f in **Table 2.3**) recorded during the final site visit would be expected to fledge, along with 50% of smaller chicks, providing fewer than 20% of broods are still small and downy on the last survey date (Walsh *et al.* 1995). Additionally, it was assumed that that any large young (denoted e-ff in **Table 2.3**) noted on the previous visit had fledged if they were no longer present. Note that larger chicks will often move around between nearby nests, so total accuracy cannot be confirmed in this regard.



2.2.22 Breeding success was calculated by dividing the number of chicks expected to have fledged at the end of the season by the total number of AON recorded at each SC. The number of young expected to have fledged by the end of the breeding season was taken as the highest number of chicks which were of at least of a medium size (c in Table 2.3) on the final visit. It was assumed that large chicks seen on visit two that were not present during visit three had fledged, unless evidence was observed to suggest otherwise, for example, dead chicks in nests. For any small chicks remaining at the last visit, a fledging rate of 50% was assumed (as per Walsh *et. al.*, 1995).

2.2.23 Productivity has been calculated to allow a comparative analysis of breeding success between years. Productivity data presented herein have been calculated by taking the total chicks fledged at SC5 and SC8 and dividing that number by the number of total nests monitored. In 2023 and 2024 the nests from SC5 and SC8 had productivity levels representative of the wider SPA. Therefore, it is considered that a comparison between previous years whole SPA productivity and the reduced effort monitoring in 2025 is valid.

Disturbance Monitoring

2.2.24 In line with disturbance monitoring undertaken in 2024 (GoBe, 2024), monthly six-hour disturbance monitoring surveys were undertaken each month between May and July 2025 using methodology adapted from Briggs (2007). The surveyors recorded disturbance events from six VPs (Figure 2.1) that covered all kittiwake SCs with adequate visibility from land, as presented in Table 2.4. While kittiwake were the primary target species, the other breeding seabird species using the cliffs were considered secondary species in order to allow observers to focus on kittiwake should high levels of disturbance make recording for all species unfeasible.



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Wicklow Head Disturbance Monitoring
Vantage Point Locations

Legend

- Kittiwake sub-colonies
- ◆ Disturbance monitoring vantage points

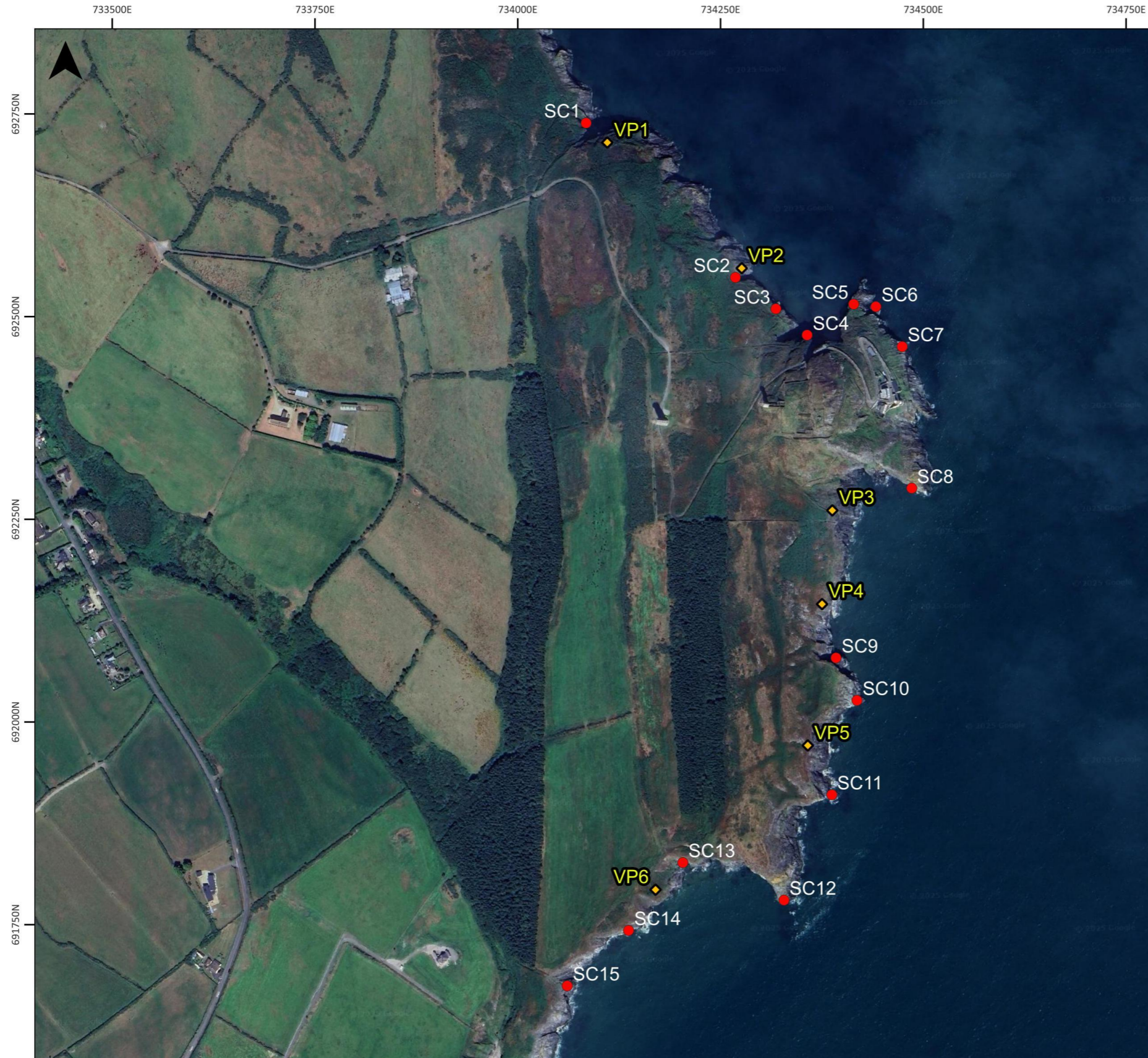


0 0.1 0.2 0.3 km

Scale: 1: 6,500 Date: 23/07/2025 Drawn by: MRo

Coordinate System:
IRENET95 / Irish Transverse
Mercator

Basemap: Google Earth Satellite © URL:
<http://mt0.google.com/vt/lyrs=s&hl=en&x={x}&y={y}&z={z}>



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Figure 2.1: Wicklow Head Disturbance Monitoring VP Locations



Table 2.4 Disturbance survey visit dates

VP	Visit	SCs covered	Date	Start time	End time	Day of week
1	1	1	26/05/2025	09:00	15:00	Monday
1	2	1	15/06/2025	10:00	16:00	Sunday
1	3	1	05/07/2025	10:00	16:00	Saturday
2	1	2-5	26/05/2025	09:00	15:00	Monday
2	2	2-5	15/06/2025	10:00	16:00	Sunday
2	3	2-5	05/07/2025	10:00	16:00	Saturday
3	1	8	26/05/2025	09:00	15:00	Monday
3	2	8	15/06/2025	10:00	16:00	Sunday
3	3	8	05/07/2025	10:00	16:00	Saturday
4	1	10	26/05/2025	09:00	15:00	Monday
4	2	10	15/06/2025	10:00	16:00	Sunday
4	3	10	05/07/2025	10:00	16:00	Saturday
5	1	11	26/05/2025	09:00	15:00	Monday
5	2	11	15/06/2025	10:00	16:00	Sunday
5	3	11	05/07/2025	10:00	16:00	Saturday
6	1	12-13	26/05/2025	09:00	15:00	Monday
6	2	12-13	15/06/2025	10:00	16:00	Sunday
6	3	12-13	05/07/2025	10:00	16:00	Saturday



2.2.25 As outlined in Table 2.4, surveys visits were split between weekdays and weekends, so as to adequately capture any variations in recreational disturbance. Surveys were also targeted at what was anticipated to be the busiest times of day, i.e., across six hours from mid-morning to mid-afternoon. Where possible, disturbance survey visits were timed to be undertaken on days when human disturbance was anticipated to be high, such as during spells of warm weather and public holidays.

2.2.26 For each potential disturbance stimulus, a level of effect was recorded (Table 2.5), which included events that did not disturb birds (for example, a distant walker that elicits no behavioural response). Different disturbance stimuli were assigned a two-letter code, as presented in Table 2.6. Notes on each disturbance were recorded, including pertinent further details such as the species of birds involved, the behaviour of a person that induced a reaction and the length of time in seconds that it took the colony to return to its previous state after initial disturbance. If birds were flushed, the length of time before individuals returned (if a return was noted) was also recorded.

Table 2.5 Codes for disturbance effects

Code	Disturbance response level
1	No observed effect
2	Heads of disturbed birds raised
3	Alarm calling
4	Flushed for less than 30 seconds
5	Flushed for 30 seconds or greater

Table 2.6 Two-letter codes for disturbance stimuli

Code	Disturbance stimuli
AC	Aircraft
BI	Other bird (excluding raptors)
BW	Birdwatcher
CE	Canoe or kayak
CY	Cyclist
DR	Drone
FS	Fisher
LV	Large vessel
ML	Mammal
Oth	Other (describe)
OW	Other watercraft
PD	Stand-up paddleboard



Code	Disturbance stimuli
RR	Raptor (bird of prey)
SV	Small vessel
UD	Uncontrolled dog (dog off lead)
UN	Unknown
VH	Vehicle
WD	Walker with dog
WE	Weather
WK	Walker

2.2.27 The distance of a stimuli from the SC(s) being monitored was estimated using known landmarks and an Ordnance Survey Ireland basemap as a guide and recorded using distance buffers, as follows; <50m, 50-100m, 100-250m, 250-500m, and >500m. In addition to disturbance events, surveyors recorded the presence of any predators or predation events, such as by corvids *Corvidae* spp. or raptors such as peregrine. Disturbance events observed during colony counts and productivity and nest monitoring visits were recorded on an *ad-hoc* basis to feed into the larger dataset.

Survey Programme Limitations

2.2.28 Due to the difficulties of undertaking productivity monitoring by boat, sub-colonies that are only visible from the sea at Wicklow Head SPA were not monitored for breeding success. In addition, two of the 10 SCs visible from land were monitored for productivity during the 2025 breeding season. This is a lower number of sub-colonies than monitored in previous years however, 2024 was the only year in the previous five during which the maximum number of SCs were subject to productivity surveys. As an example, the Cork Ecology methodology in 2023 did not include productivity surveys at SC3, SC11 or SC12 and the monitoring by Tierney (2022) between 2018 and 2021 covered five SCs (1, 2, 4, 8 and 13). The productivity methodology used in 2025, however, is in line with the kittiwake productivity monitoring Method 2 as presented in the Walsh *et al.* (1995) guidance, which recommends that a number of plots are identified and monitored as opposed to entire colonies due to the difficulties associated with undertaking surveys of this nature. For context, across all SCs monitored, a total of 319 AON were monitored for productivity in 2023, 377 AON in 2024 and 78 AON in 2025. The number of AONs monitored in 2025 equates to 24.45% of those monitored in 2023 and 20.69% of those monitored in 2024.

2.2.29 While the Walsh *et al.* (1995) guidance recommends monitoring the same plots year-on-year, this is not always be possible for surveys of this type due to a number of potential factors. These may include, but not be limited to, vegetation growth obscuring views or encroaching into nest space, SC failures due to disturbance, prey availability, predation or storms, erosion impacting nest space or VP locations safety and land access.



2.2.30 The mean productivity rate of the two sub-colonies monitored in 2025 (0.48) was in-line with the average productivity rate across both 2023 and 2024 combined (0.51), although it was down year-on-year from 2024, which saw a rate of 0.72 at the Wicklow Head SPA. However, 2024 was a particularly good year for kittiwake at the colony, with the third highest level of productivity since surveys commenced in 2018. In comparison, productivity at the colony in 2023 was at its lowest since the surveys began, at 0.25. The disturbance surveys have been undertaken following best practice; however, these surveys provide a snapshot of a limited window in time at the colony and will not record every disturbance event across the season.



3 Results

3.1 Colony census

- 3.1.1 Colony counts were undertaken at all 15 SCs shown in Figure 1.2. For each species, the highest colony-wide peak inclusive of both land- and boat-based counts is reported as the final total and highest reliable count, rather than the sum of individual SC peaks, as per Walsh *et al.* (1995).
- 3.1.2 Overall, kittiwake numbers increased by 53.6% between 2018 and 2025 (Table 3.1). The 2025 kittiwake colony census of all SCs at the Wicklow Head SPA resulted in a total of 1,077 AON. This represents the highest result since 2019 (inclusive) and an increase of 226 AON when compared to the 2024 census. Full results for 2018-2022 are available on the SMP (2026) and in Tierney (2022), while full results from 2023 (Cork Ecology, 2023), 2024 (GoBe Consultants, 2024) and 2025 are presented herein in Appendix B.

Table 3.1 Wicklow Head kittiwake colony census results 2018-2025.

Count Unit	2018	2019	2020	2021	2022	2023	2024	2025
AON	674	773	-	729	674	645	851	1,077
TRA	80	75	-	-	33	86	56	81

Table note: The 2018-2022 counts are from SMP (2026), while 2023 counts are from Cork Ecology (2023), and 2024 counts are from GoBe (2024). No colony census data are available for 2020.

3.2 Productivity

- 3.2.1 Kittiwake productivity at Wicklow Head SPA declined from 0.84 ± 0.12 in 2018 to 0.48 ± 0.06 in 2025 (Table 3.2). In 2023, a number of SCs failed completely (SC2, SC5 and SC13) or almost completely (SC1), whereas in 2024 the only SCs to fail were those with only small numbers of nests initially (SC11 and SC12). However, the results indicate that 2024 was a particularly good year for kittiwake at the colony, with the third highest level of productivity since surveys commenced in 2018. In 2025, productivity varied between the two monitored SCs, ranging from 0.30 at SC5 to 0.66 at SC8. Full 2023-2025 productivity results are presented in Appendix C. At both SCs that were monitored for productivity in 2025, the brood sizes were of either one or two chicks, with an average brood size was 1.58 across all AON monitored (Appendix C). Nest failure percentage rates by SC monitored in 2025 varied between 28.6% at SC8 and 53.5% at SC5 (Appendix C).
- 3.2.2 Changeover rates, chick feeding rates and unattended chicks were monitored in 2023 in addition to productivity. Over three monitoring hours, no adult changeovers were recorded at SC4 and SC10¹ for 52.5% of the nests, while one changeover was recorded for 33.6% of the nests during that three-hour period (Cork Ecology, 2023). It was found that 43.2% of all changeovers resulted in a feeding event (Cork Ecology, 2023). Overall, there were 0.15 feeding events per hour across both SCs (Cork Ecology, 2023). Unattended chicks were also monitored at SC4 and SC10 in 2023. The period where chicks were left unattended ranged from between 2 and 166 minutes (Cork Ecology, 2023).

¹ These SCs were selected as they have been the most productive in recent years. The majority of other SCs failed in 2023.



Table 3.2 Wicklow Head kittiwake colony productivity results 2018-2025.

Year	Productivity (\pm SD)
2018	0.84 (\pm 0.12)
2019	0.34 (\pm 0.07)
2020	0.68 (\pm 0.12)
2021	0.96 (\pm 0.15)
2022	0.30 (\pm 0.12)
2023	0.25 (\pm 0.13)
2024	0.72 (\pm 0.10)
2025	0.48 (\pm 0.06)

Table note: 2018-2021 from Tierney (2022), 2022 from NPWS (2022), 2023 from Cork Ecology (2023) and 2024 from GoBe Consultants (2024).

3.3 Disturbance

- 3.3.1 Disturbance was recorded at Wicklow Head from 2023 to 2025. In 2023, due to access restrictions introduced by a private landowner, there were limited measures in place (locked gates, security cameras, and signage) to prevent visitors from visiting Wicklow Head; however, visitors were regularly documented beyond the locked gate (Cork Ecology, 2023. SPL, 2023). Furthermore, during the 2023 survey period, kittiwakes were observed being flushed from nests when a tourist boat stopped close to the sea cliffs to view the lighthouse (SPL, 2023).
- 3.3.2 In 2024, the main potential source of disturbance at SC1 (and to a lesser extent SC2) was walkers due to the location of the two paths passing above the colony on the cliff top. One path runs close to the edge while the other has a viewpoint over the colony, which is dangerously close to the cliff edge. Guard birds can see the viewing platform and when these birds are disturbed, this has a knock-on effect for the rest of the colony. A more significant disturbance threat was found in 2024 at SC5 and SC6 due to the presence of a jetty/ pier used by walkers and fishers, which is very close to the main concentration of nests at these SCs. The nesting birds are at eye level at less than 10m distance, therefore, the presence of people on the pier was observed to cause some flushing.
- 3.3.3 In 2025, the number of anthropogenic disturbance events recorded at Wicklow Head SPA were lower than in 2024, partly due to surveys being undertaken between May and July as opposed to between April and July, as in 2024. This change in the disturbance survey period was an active choice to coincide with the Wicklow Head kittiwake breeding behaviour as a result of a lesson learned from the 2024 surveys. In 2024, while kittiwake were arriving/ present in April, nesting did not begin properly until May.
- 3.3.4 Four major human-induced events caused prolonged flushing of kittiwakes (\geq 30 seconds), involving a drone once, two kayaks and once from a small vessel, while walkers and small boats were the most frequent sources of minor disturbance at SC1, with similar patterns to 2024. SC2–SC4 recorded no anthropogenic disturbance, and SC5, SC8, SC10, SC11, SC12 and SC13 experienced only occasional low-level events, mainly from boats or aircraft. See Appendix A for the complete disturbance survey results from 2024 and 2025.



3.4 Secondary Species

- 3.4.1 While, kittiwake were the primary target species for Wicklow Head monitoring surveys, full colony counts were also undertaken for fulmar, shag, herring gull, guillemot and razorbill. Any other nesting species were also recorded (great black-backed gull, black guillemot, kestrel, peregrine and shelduck). For each species, the highest colony-wide peak inclusive of both land- and boat-based counts is reported as the final total and highest reliable count, rather than the sum of individual SC peaks, as per Walsh *et al.* (1995). Census data for secondary species are outlined in **Table 3.3**.
- 3.4.2 Fulmar numbers decreased between 2018 and 2025 from 41 to 19 AOS, while shag numbers increased from 20 to 42 AON. Herring gull numbers also decreased from 23 to 14 AON/AOT. However, both guillemot and razorbill numbers increased over the period of 2018-2025. Guillemot numbers increased by 74.2% from 650 to 1,132 IND and razorbill numbers increased by 180.1% from 176 to 493 IND.
- 3.4.3 Great black-backed gull were last recorded in 2019 with a count of one AOT. In addition, black guillemot were recorded at the Wicklow Head SPA in 2025, with a peak count of 17 IND. While this is the first time this species has been censused during this 2018-2025 survey programme, the species has been present at the site historically. The key census time for black guillemot is no later than April, which is generally too early for kittiwake. However, it can be inferred from the 2025 results that this year was a late breeding year for black guillemot.

Table 3.3 Wicklow Head additional species census results 2018-2025.

Species (Count Unit)	2018	2019	2020	2021	2022	2023	2024	2025
Fulmar (AOS)	68 ²	25	-	23	15	18	17	19
Shag (AON)	20	34	-	35	37	49	52	42
Herring gull (AON/AOT)	23	12	-	9	7	13	20	14
Guillemot (IND)	679	955	-	737	674	897	931	1,132
Razorbill (IND)	189	232	-	184	157	276	517	493
Great black-backed gull (AOT)	-	1	-	-	-	-	-	-
Black guillemot (IND)	-	-	-	-	-	-	-	17
Kestrel (AOT)	-	-	-	-	-	-	1	1
Peregrine (AOT)	-	-	-	-	-	-	1	1
Shelduck (AOT)	-	-	-	-	-	-	-	3

Table notes: 2018/19 and 2022 counts are from the SMP (2026), supplemented with estimates from Tierney (2022) where SMP data are unavailable. 2021 counts are from Tierney (2022), 2023 counts are from Cork Ecology (2023), and 2024 counts are from GoBe Consultants (2024). Where multiple counts are available for a given year, the peak (highest) count has been used. Non-seabird species count data prior to 2024 are unavailable.

² Combined land-based and sea-based count results.



4 Conclusion

- 4.1.1 The most recent kittiwake AON increased by 26% in 2025 when compared to 2024, to a total of 1,077 AON. Kittiwake productivity has been variable in recent years, with the 2024 results showing a significant recovery from the previous two years to 0.72 (± 0.10), the highest figure since 2021. The most recent results for 2025 (0.48) showed a decrease in productivity from 2024, but an increase from 2023 (0.25). (Table 3.2).
- 4.1.2 The main potential source of disturbance at SC1 (Figure 4.1) is walkers and associated events from visitors (such as drone flights), due to the location of two footpaths passing above the SC on the cliff top. There was no anthropogenic disturbance observed at SC2, SC3 and SC4. Anthropogenic disturbance recorded was generally low at the other monitored SCs.
- 4.1.3 The 2025 results showed an overall decrease in fulmar numbers from 41 AOS in 2018 to 19 AOS in 2025. Shag numbers had been continuing an upward trend from 20 AON in 2018 to 42 AON in 2025. Herring gull numbers also decreased from 22 pairs recorded in 2018 to 14 AON/AOT in 2025. The number of auks at the Wicklow Head SPA has fluctuated between years, which is likely in part a result of boat-based counts not being undertaken in some survey years. Guillemot numbers increased from 931 IND in 2024 to 1,132 IND in 2025, while razorbill numbers decreased from 517 IND in 2024 to 493 IND in 2025.



Figure 4.1. Location of SC1 at Wicklow Head



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Appendix A: Full Disturbance Survey Results 2024 and 2025

A.1.1 The following tables present complete results from disturbance surveys at each Wicklow Head SPA kittiwake sub-colony, including both disturbance events that elicited a response from the kittiwake, as well as those that did not. While kittiwake were the target species, records of other species being affected by disturbance events have also been included, but only when there was a physical response from these birds.



Table 5.1 Full 2024 Disturbance Survey Results: SC1

Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
1	Kittiwake	Not specified	WK	N/A	1	N/A	-
1	Kittiwake	Not specified	WK	N/A	1	N/A	-
1	Kittiwake	Not specified	WK	N/A	1	N/A	-
1	N/A	N/A	BI	UN	1	N/A	male kestrel mobbing carrion crow over cliffs between SC2 + SC1
2	Kittiwake. Razorbill	44, 5	WD	100-250	1	N/A	5 walkers with 2 dogs behind VP
2	Kittiwake. Razorbill	44, 5	FS	250-500	1	00:00:29	Medium fishing vessel 400m offshore
2	Kittiwake. Razorbill	44; 5	SV	100-250	4	N/A	small recreation fishing vessel flushed 5 razorbill for 29 seconds, kittiwakes not flushed
2	Kittiwake, Fulmar, Shag, Razorbill, Herring gull, Black guillemot	52, 2, 1, 7, 2, 2	SV	250-500	1	N/A	2 small sailing vessels
2	Kittiwake, Fulmar, Shag, Razorbill	55, 2, 1, 8	FS	250-500	1	N/A	fishing vessel 500m offshore
2	Kittiwake, Fulmar, Shag, Razorbill	55, 2, 1, 8	SV	>500	1	N/A	small sailing vessel
2	Kittiwake. Razorbill	2; 2	RR	<50	3	N/A	Kestrel prey delivery to nest. No disturbance



Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
2	Kittiwake, Razorbill, Fulmar	51, 10, 2	WK	100-250	1	N/A	5 walkers on cliff above VP
2	Kittiwake, Razorbill, Fulmar	51, 10, 2	WK	100-250	1	N/A	4 walkers on cliff above VP
2	Kittiwake, Razorbill	2; 2	RR	<50	1	N/A	Kestrel pair change over
2	Kittiwake, Razorbill, Fulmar	53, 10, 2	WK	100-250	1	N/A	2 walkers on clifftop
2	Kittiwake, Razorbill, Fulmar	53, 10, 2	SV	100-250	1	N/A	small vessel sailing fast
2	Kittiwake, Razorbill, Fulmar, Herring gull	53, 9, 2, 1	SV	250-500	1	N/A	small vessel, no reaction
2	Kittiwake, Razorbill, Fulmar, Herring gull	53, 9, 2, 1	FS	250-500	1	N/A	fishing vessel offshore
2	Kittiwake, Shag	19; 1	RR	<50	5	00:01:00	Kestrel dived at shag beside kestrel nest and flushed 19 kittiwake for 60 seconds
2	Kittiwake, Razorbill, Fulmar, Herring gull	53, 9, 2, 1	SV	250-500	1	N/A	small sailing vessel
2	Kittiwake, Razorbill,	53, 9, 2, 1	DR	100-250	1	N/A	small drone overhead flying north



Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
	Fulmar, Herring gull						
3	Kittiwake	25	CE	<50	2; 3	N/A	1x sea kayak in close to cliff and cave; the lower down kittiwake alarm called but shag nest not visible; 4 adult herring gull alarm called; one mobbed kayak then returned to ledge; kayaker left area and proceeded north towards Wicklow town at 09:16
3	Shag	2	CE	<50	5	> 00:05:00	1x sea kayak in close to cliff and cave; the lower down kittiwake alarm called but shag nest not visible; 4 adult herring gull alarm called; one mobbed kayak then returned to ledge; kayaker left area and proceeded north towards Wicklow town at 09:16
3	Herring gull	4	CE	<50	3	00:00:40	1x sea kayak in close to cliff and cave; the lower down kittiwake alarm called but shag nest not visible; 4 adult herring gull alarm called; one mobbed kayak then returned to ledge; kayaker left area and proceeded north towards Wicklow town at 09:16
3	Not specified	Not specified	ML	<50	0	N/A	2 adult grey seal loafing on surface right below kittiwake colony little or no perceived reaction observed
3	Not specified	Not specified	SV	N/A	0	N/A	small powered fishing vessel full steam SSW past no perceived disturbance
3	Not specified	Not specified	SV	250-500	0	N/A	small rib SSE no perceived disturbance
3	Not specified	Not specified	AC	>500	0	N/A	light aircraft NNW at 3000m above sea level (ASL), no disturbance
3	Not specified	Not specified	AC	>500	0	N/A	light aircraft NNW at 4000m ASL, no disturbance
3	Not specified	Not specified	SV	>500	0	N/A	small commercial fishing boat steam north at 4km from colony. No disturbance



Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
3	Kittiwake	3	BI	<50	4	00:00:20	Hooded crow above colony mobbed by 3 adult kittiwakes. Hooded crow flew north 3 kittiwakes returned to colony
3	Kittiwake	32	UN	UN	4	00:00:20	32 non-incubating birds (flushed and alarm called, unknown stimuli)
3	Not specified	Not specified	AC	>500	0	N/A	Two light aircraft overhead, no perceived disturbance
3	Not specified	Not specified	SV	>500	0	N/A	Small sailing boat SSE
3	Kittiwake	45	UN	UN	4	00:00:15 to 00:00:20	<i>Circa</i> 45 non-incubating kittiwake flushed out and back. Unknown stimuli.
3	Not specified	Not specified	RR	<50	0	N/A	Male kestrel flew over VP SSW over colony. No perceived disturbance observed
3	Not specified	Not specified	AC	>500	0	N/A	Light aircraft directly overhead heading south. No disturbance
3	Kittiwake	35	UN	UN	4	00:00:10 to 00:00:15	35 non-incubating kittiwake spooked and flushed unknown stimuli
3	Not specified	Not specified	SV	>500	0	N/A	Small fishing boat heading north lifting and dropping pots, no perceived disturbance
3	Not specified	Not specified	RR	<50	0	N/A	Male kestrel flew overhead at VP1 SW over headland no perceived disturbance at SC1
3	Not specified	Not specified	AC	>500	0	N/A	Light aircraft over VP1, no perceived disturbance
3	Kittiwake	300+	SV	100-250	1	N/A	Yacht
4	Kittiwake	16	BI	<50	3	N/A	Great black-backed gull
4	Kittiwake	22	BI	<50	4	00:00:43	Hooded crow
4	Kittiwake	131	BI	<50	1	N/A	Herring gull; no response
4	Kittiwake	131	BI	<50	1	N/A	Herring gull; no response
4	Kittiwake	12	ML	<50	3	N/A	Seal
4	Kittiwake	7	BI	<50	4	N/A	Hooded crow
4	Kittiwake	9	BI	<50	4	N/A	Hooded crow
4	Kittiwake	131	AC	>500	1	N/A	-
4	Kittiwake	65	BI	<50	5	N/A	Arctic skua mobbing 12 kittiwakes



Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
4	Kittiwake	131	BI	<50	1	N/A	Herring gull
4	Kittiwake	131	BI	<50	1	N/A	Herring gull
4	Kittiwake	6	BI	<50	5	00:00:58	Hooded crow; 2 kittiwakes alarming, 4 kittiwakes flushed and mobbed
4	Kittiwake	131	BI	<50	1	N/A	Herring gull
4	Kittiwake	131	BI	<50	1	N/A	Kestrel
4	Kittiwake	131	BI	<50	1	N/A	Herring gull
4	Kittiwake	131	SV	250-500	1	N/A	-
4	Kittiwake	14	BI	<50	5	00:01:12	Great black-backed gull; 12 kittiwakes alarming, 2 flushed
4	Kittiwake	20-30	WD	<50	3	N/A	20-30 kittiwake alarm
4	Kittiwake	78	BI	<50	5	N/A	Raven; 75 kittiwakes alarming, 3 flushed
4	Kittiwake	20	BI	<50	2	N/A	Great black-backed gull; 20 kittiwake heads up
4	Kittiwake	25	BI	<50	4;5	00:00:19	Raven; 25 kittiwake alarm then flushed
4	Kittiwake	3	LV	100-250	2	N/A	Fishing boat; 3 kittiwake heads up



Table 5.2 Full 2025 Disturbance Survey Results: SC1

Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
1	Kittiwake	0	N/A	N/A	1	00:00:00	No disturbance events recorded
2	Kittiwake	0	AC	>500	1	00:00:00	>2km above colony, 100m from colony
2	Kittiwake	79	ML	<50	5	00:00:39	Seal
2	Kittiwake	0	AC	>500	1	00:00:00	>2km above colony, 200m from colony
2	Kittiwake	0	SV	>500	1	00:00:00	N/A
2	Kittiwake	0	AC	>500	1	00:00:00	>2km above colony, 100m from colony
2	Kittiwake	35	BI	<50	3	00:00:00	Two hooded crow perched above colony
2	Kittiwake	0	LV	>500	1	00:00:00	>2km from colony
2	Kittiwake	0	LV	>500	1	00:00:00	>2km from colony
2	Kittiwake	0	AC	>500	1	00:00:00	>2km above colony, 50m from colony
2	Kittiwake	77	BI	<50	4	00:00:29	Three hooded crow
2	Kittiwake	47	BI	<50	4	00:00:29	Two hooded crow, one kittiwake egg predated
2	Kittiwake	0	WK	100-250	1	00:00:00	Five walkers
2	Kittiwake	0	WK	100-250	1	00:00:00	Three walkers
2	Kittiwake	37	BI	<50	4	00:00:22	Hooded crow
2	Kittiwake	7	RR	100-250	3	00:00:00	Female peregrine chasing feral pigeon and kittiwake
2	Kittiwake	0	LV	>500	1	00:00:00	Ferry >2km from colony
2	Kittiwake	3	ML	50-100	3	00:00:00	Grey seal
2	Kittiwake	0	SV	250-500	1	00:00:00	N/A
2	Kittiwake	3	ML	50-100	3	00:00:00	Grey seal
2	Kittiwake	102	BI	<50	5	00:00:32	Hooded crow predated one kittiwake egg
2	Kittiwake	0	AC	>500	1	00:00:00	>2km above colony, 100m from colony
2	Kittiwake	14	WK	100-250	3	00:00:00	Three walkers
2	Kittiwake	16	BI	<50	3	00:00:00	Great black-backed gull
2	Kittiwake, shag	13/ 2	ML	50-100	4	00:00:27	Seal
2	Kittiwake	0	SV	>500	1	00:00:00	N/A
2	Kittiwake	12	ML	<50	4	00:00:21	Seal



Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
2	Kittiwake	4	SV	100-250	3	00:00:00	Fishing vessel
2	Kittiwake	0	SV	>500	1	00:00:00	Sailing boat
2	Kittiwake	9	ML	<50	4	00:00:26	Seal
2	Kittiwake	47	BI	<50	4	00:00:29	Hooded crow
2	Kittiwake	0	SV	>500	1	00:00:00	N/A
2	Kittiwake	8	BI	<50	2	00:00:00	Hooded crow displaced by walkers caused kittiwake disturbance
2	Kittiwake	0	WK	50-100	1	00:00:00	N/A
2	Kittiwake	65	BI	<50	5	00:01:29	Herring gull predated one kittiwake egg
2	Kittiwake	62	DR	50-100	5	00:01:46	N/A
3	Kittiwake	23	WK	50-100	3	00:00:00	N/A
3	Kittiwake	7	SV	100-250	2	00:00:00	N/A
3	Kittiwake	12	SV	100-250	2	00:00:00	N/A
3	Kittiwake	72	BI	50-100	5	00:00:00	Two great black-backed gull
3	Kittiwake	26	SV	50-100	3	00:00:00	N/A
3	Kittiwake	16	CE	50-100	3	00:00:00	N/A
3	Kittiwake	70	BI	<50	5	00:00:00	Hooded crow
3	Kittiwake	35	SV	<50	3	00:00:00	Disturbance caused by boat bailing water
3	Kittiwake	0	AC	100-250	1	00:00:00	Aircraft passed overhead
3	Kittiwake	40	BI	50-100	5	00:00:26	Herring gull mobbed by kittiwake
3	Kittiwake	18	ML	<50	5	00:00:31	Kittiwake mobbed seal
3	Kittiwake	0	SV	100-250	1	00:00:00	N/A
3	Kittiwake	28	WK	50-100	3	00:00:00	Four walkers
3	Kittiwake	27	WK	50-100	3	00:00:00	N/A
3	Kittiwake	0	DR	<50	1	00:00:00	N/A
3	Kittiwake	0	SV	100-250	1	00:00:00	N/A
3	Kittiwake	45	WK	<50	3	00:00:00	N/A
3	Kittiwake	25	BI	<50	5	00:00:00	Disturbance caused by kittiwake returning with food as other kittiwake mobbed the returning bird
3	Kittiwake	31	ML	<50	5	00:00:28	Seal



Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
3	Kittiwake	0	ML	<50	1	00:00:00	Seal
3	Kittiwake	0	SV	100-250	1	00:00:00	Fishing vessel
3	Kittiwake	0	SV	250-500	1	00:00:00	Sailing boat
3	Kittiwake	56	ML	<50	5	00:00:00	Seal
3	Kittiwake	17	WK	<50	3	00:00:00	Five walkers
3	Kittiwake	0	RR	100-250	1	00:00:00	Peregrine obscured behind craig.
3	Kittiwake	12	BI	<50	3	00:00:00	Great black-backed gull
3	Kittiwake	42	BI	<50	4	00:00:00	N/A



Table 5.3 Full 2024 Disturbance Survey Results: SC2

Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
1	Kittiwake	2	N/A	N/A	N/A	N/A	Male kestrel. around SC1/SC2 area (cliff between SC2 and SC1).
1	Not specified	Not specified	BI	UN	1	N/A	Male kestrel. mobbing carrion crow over cliffs between SC2 + SC1
1	Kittiwake, Guillemot, Razorbill, Fulmar, Shag	Not specified	BI	50-100	1	N/A	2 raven flying north. No response
3	Kittiwake	300+	SV	250-500	1	N/A	Fishing boat at speed. Came from distance and moved closer
3	Kittiwake	300+	ML	<50	1	N/A	Seal no reaction
3	Kittiwake	300+	SV	250-500	1	N/A	Fishing vessel
3	Kittiwake	300+	WK	<50	1	N/A	2 WK
3	Kittiwake	300+	WK	<50	1	N/A	2 WK
3	Kittiwake	300+	BI	<50	1	N/A	2 herring gull
3	Kittiwake	300+	LV	UN	1	N/A	-
3	Kittiwake	300+	SV	UN	1	N/A	-
3	Kittiwake	300+	WK	<50	1	N/A	-
3	Kittiwake	300+	SV	>500	1	N/A	Yacht
3	Kittiwake	300+	WK	<50	1	N/A	1 WK
3	Kittiwake	300+	LV	>500	1	N/A	>1km
3	Kittiwake	300+	WK	<50	1	N/A	2 WK
3	Kittiwake	300+	WK	<50	1	N/A	1 WK
3	Kittiwake	300+	WK	<50	1	N/A	2 WK
3	Kittiwake	300+	W	<50	1	N/A	2 WK
3	Kittiwake	300+	ML	<50	1	N/A	Seal
3	Kittiwake	300+	WK	<50	1	N/A	1 WK
3	Kittiwake	300+	SV	>500	1	N/A	Fishing boat
4	Kittiwake	2	FS	100-250	3	N/A	Fisher shouted causing alarm call, no other effect



Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
4	Kittiwake, Shag	2;7	VH	100-250	3	N/A	Disturbance from vehicle noise
4	Kittiwake, Lesser black-backed gull	3;9	OW	250-500	2	N/A	Disturbance from engine noise

Table 5.4 Full 2025 Disturbance Survey Results: SC2

Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
1	Kittiwake	48	RR	100-250	3	00:00:00	Peregrine flew past hunting feral pigeon
2	Kittiwake	0	N/A	N/A	1	00:00:00	No disturbance events recorded
3	Kittiwake	0	N/A	N/A	1	00:00:00	No disturbance events recorded



Table 5.5 Full 2024 Disturbance Survey Results: SC3

Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
1	Kittiwake, Guillemot, Razorbill, Fulmar, Shag	Not specified	BI	50-100	1	N/A	2 raven fly north. No response
1	Kittiwake, Guillemot, Razorbill, Shag, Fulmar	Not specified	BI	50-100	1	N/A	Raven, flying north over colonies
1	Kittiwake, Guillemot, Razorbill, Shag, Fulmar	Not specified	RR	50-100	1	N/A	2 peregrines flying north over colonies
3	Kittiwake	19;9	RR	<50	4	00:28:00	Peregrine female
3	Kittiwake	12	ML	50-100	4	00:17:00	Seal
3	Kittiwake	52;22	ML	<50	5	00:51:00	Seal
3	Kittiwake	9	ML	<50	5	01:18:00	Seal
3	Kittiwake	300+	SV	250-500	1	N/A	Fishing boat at speed. Came from distance and moved closer
3	Kittiwake	300+	ML	<50	1	N/A	Seal no reaction
3	Kittiwake	300+	SV	250-500	1	N/A	Fishing vessel
3	Kittiwake	300+	WK	<50	1	N/A	2 WK
3	Kittiwake	300+	WK	<50	1	N/A	2 WK
3	Kittiwake	300+	BI	<50	1	N/A	2 herring gull
3	Kittiwake	300+	LV	UN	1	N/A	-
3	Kittiwake	300+	SV	UN	1	N/A	-
3	Kittiwake	300+	WK	<50	1	N/A	-



Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
3	Kittiwake	300+	SV	>500	1	N/A	Yacht
3	Kittiwake	300+	WK	<50	1	N/A	1 WK
3	Kittiwake	300+	LV	>500	1	N/A	>1km
3	Kittiwake	300+	WK	<50	1	N/A	2 WK
3	Kittiwake	300+	WK	<50	1	N/A	1 WK
3	Kittiwake	300+	WK	<50	1	N/A	2 WK
3	Kittiwake	300+	WK	<50	1	N/A	2 WK
3	Kittiwake	80-90	BI	<50	3	N/A	Herring gull. Made several passes
3	Kittiwake	300+	ML	<50	1	N/A	Seal
3	Kittiwake	300+	WK	<50	1	N/A	1 WK
3	Kittiwake	300+	SV	>500	1	N/A	Fishing boat
4	Kittiwake	3	CE	250-500	2	N/A	Kittiwake noted distant kayak, no other effect

Table 5.6 Full 2025 Disturbance Survey Results: SC3

Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
1	Kittiwake	62	RR	100-250	5	00:00:15	Peregrine flew past, going to and from nest
1	Kittiwake	48	RR	100-250	3	00:00:00	Peregrine flew past, hunting feral pigeon
2	Kittiwake	0	N/A	N/A	1	00:00:00	No disturbance events recorded
3	Kittiwake	0	N/A	N/A	1	00:00:00	No disturbance events recorded



Table 5.7 Full 2024 Disturbance Survey Results: SC4

Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
1	Kittiwake, Guillemot, Razorbill, Fulmar, Shag	Not specified	WD	100-250	1	N/A	2 people and dog running on path/road far away from sc4
1	Kittiwake, Guillemot, Razorbill, Fulmar, Shag	Not specified	WD	50-100	1	N/A	The same 2 people and dog running back
1	Guillemot, Razorbill, Shag	100+; 2	BW	<50	5	00:06:00	surveyor walking around VP area
1	Guillemot, Razorbill	200	UN	UN	5	00:02:30	flush of auks. No obvious stimuli.
1	Guillemot, Razorbill	150+	BW	50-100	5	00:02:00	Guillemot, razorbill flushed when surveyor stood up at VP location. Birds flushed but return in 2 mins
1	Kittiwake, Guillemot, Razorbill, Shag, Fulmar	Not specified	BI	<50	1	N/A	Raven circling/searching low over SC4, SC5. No response
1	Kittiwake, Guillemot, Razorbill, Fulmar, Shag	Not specified	BI	<50	1	N/A	Raven (carrying food) circling low over SC4/5. No response
1	Kittiwake, Guillemot,	Not specified	BI	50-100	1	N/A	2 ravens flying north. No response



Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
	Razorbill, Fulmar, Shag						
1	Kittiwake, Guillemot, Razorbill, Shag, Fulmar	Not specified	BI	50-100	1	N/A	Kestrel mob raven over SC4/5. No response
1	Kittiwake, Razorbill, Guillemot, Fulmar, Shag	Not specified	WK	50-100	1	N/A	2 people walking main path/road
1	Kittiwake, Razorbill, Guillemot, Fulmar, Shag	Not specified	BI	50-100	1	N/A	male kestrel. mob raven over SC4/5
1	Kittiwake, Razorbill, Guillemot, Fulmar, Shag	Not specified	RR	<50	1	N/A	male peregrine fly over sc4/5
1	Kittiwake, Guillemot, Razorbill, Shag, Fulmar	Not specified	BI	50-100	1	N/A	Raven, flying north over colonies
1	Kittiwake, Guillemot, Razorbill,	Not specified	RR	50-100	1	N/A	2 peregrines flying north over colonies



Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
	Shag, Fulmar						
1	Kittiwake, Guillemot, Razorbill, Shag, Fulmar	Not specified	WK	50-100	1	N/A	2 people walking path/road
3	Kittiwake	19;9	RR	<50	4	00:28:00	Peregrine female
3	Kittiwake	52;22	ML	<50	5	00:51:00	Seal
3	Kittiwake	76	BW	50-100	2	N/A	2 photographers
3	Kittiwake	300+	SV	250-500	1	N/A	Fishing boat at speed. Came from distance and moved closer
3	Kittiwake	300+	ML	<50	1	N/A	Seal no reaction
3	Kittiwake	300+	SV	250-500	1	N/A	Fishing vessel
3	Kittiwake	300+	WK	<50	1	N/A	2 WK
3	Kittiwake	104	ML	<50	4	00:29:00	Seal
3	Kittiwake	300+	WK	<50	1	N/A	2 WK
3	Kittiwake	300+	BI	<50	1	N/A	2 HG
3	Kittiwake	300+	LV	UN	1	N/A	-
3	Kittiwake	300+	SV	UN	1	N/A	-
3	Kittiwake	225	BI	<50	3	N/A	All SC4/5 alarming (HG)
3	Kittiwake	300+	WK	<50	1	N/A	-
3	Kittiwake	1	BI	<50	5	00:09:05	Hooded crow, 1 kittiwake mobbing from SC4
3	Kittiwake	300+	SV	>500	1	N/A	Yacht
3	Kittiwake	300+	WK	<50	1	N/A	1 WK
3	Kittiwake	300+	LV	>500	1	N/A	>1km
3	Kittiwake	300+	WK	<50	1	N/A	2 WK
3	Kittiwake	300+	WK	<50	1	N/A	1 WK
3	Kittiwake	300+	WK	<50	1	N/A	2 WK
3	Kittiwake	300+	WK	<50	1	N/A	2 WK



Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
3	Kittiwake	80-90	BI	<50	3	N/A	Herring gull. Made several passes
3	Kittiwake	300+	ML	<50	1	N/A	Seal
3	Kittiwake	300+	WK	<50	1	N/A	1 WK
3	Kittiwake	300+	SV	>500	1	N/A	Fishing boat
4	Kittiwake, Fulmar, Guillemot, Razorbill	12 KI	RR	<50	2	N/A	No flush: Male peregrine fly past around 12 kittiwake at SC5 raise heads
4	Kittiwake, Fulmar, Guillemot, Razorbill	12 KI	BI	<50	2	N/A	No flush; raven fly past. C. 12 kittiwake SC5 raise head
4	N/A	Not specified	WK	<50	1	N/A	Total 4 people walking by in tour 7
4	Kittiwake, Guillemot, Razorbill, Fulmar	Not specified	WK	<50	1	N/A	total of 5 people walking paths in hour 2
4	Kittiwake, Guillemot, Razorbill, Fulmar	Not specified	WK	<50	1	N/A	No flush; a total of 11 people walking path/track in hour 3. no response
4	Kittiwake, Guillemot, Razorbill, Fulmar, Shag	Not specified	BW	<50	1	N/A	A bird photographer sat on wall by path above SC4. no response
4	Kittiwake, Guillemot, Razorbill,	Not specified	UN	<50	1	N/A	The same photographer as above moved to 20 m above sc4 out of view of birds. No response



Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
	Fulmar, Shag						
4	Kittiwake	35	BW	UN	4	00:00:20	-
4	Kittiwake, Guillemot, Razorbill, Shag, Fulmar	Not specified	WK	<50	1	N/A	total of 4 people walking paths. No response.
4	Kittiwake, Guillemot, Razorbill, Shag, Fulmar	Not specified	BI	<50	1	N/A	adult great black-backed gull cruising cliffs around SC4/5 looking / searching. No response
4	Kittiwake	3	CE	250-500	2	N/A	Kittiwake noted distant kayak, no other effect

Table 5.8 Full 2025 Disturbance Survey Results: SC4

Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
1	Kittiwake	58	UN	UN	5	00:00:20	N/A
1	Kittiwake	40	UN	UN	1	00:00:00	N/A
2	Kittiwake	18+	BI	<50	3	00:00:00	Herring gull
3	Kittiwake	0	N/A	N/A	1	00:00:00	No disturbance events recorded



Table 5.9 Full 2024 Disturbance Survey Results: SC5

Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
1	Kittiwake, Guillemot, Razorbill, Fulmar, Shag	Not specified	WD	50-100	1	N/A	The same 2 people and dog running back
1	Guillemot, Razorbill	200	UN	UN	5	00:02:30	flush of auks. No obvious stimuli.
1	Raven	N/A	N/A	N/A	N/A	N/A	Raven seen flying around SC5 area seven times, a built nest. present on cliff between SC2 + SC1 (unoccupied)
1	Kittiwake, Guillemot, Razorbill, Shag, Fulmar	Not specified	BI	<50	1	N/A	Raven circling/searching low over SC4, SC5. No response
1	Kittiwake, Guillemot, Razorbill, Fulmar, Shag	Not specified	BI	<50	1	N/A	Raven (carrying food) circling low over SC4/5. No response
1	Kittiwake, Guillemot, Razorbill, Shag, Fulmar	Not specified	BI	50-100	1	N/A	Kestrel mob raven over SC4/5. No response
1	Kittiwake, Razorbill, Guillemot, Fulmar, Shag	Not specified	WK	50-100	1	N/A	2 people walking main path/road



Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
1	Kittiwake, Razorbill, Guillemot, Fulmar, Shag	Not specified	BI	50-100	1	N/A	male kestrel mob raven over SC4/5
1	Kittiwake, Razorbill, Guillemot, Fulmar, Shag	Not specified	RR	<50	1	N/A	male peregrine flying over SC4/5
1	Kittiwake, Guillemot, Razorbill, Shag, Fulmar	Not specified	BI	50-100	1	N/A	Raven, flying north over colonies
1	Kittiwake, Guillemot, Razorbill, Shag, Fulmar	Not specified	RR	50-100	1	N/A	2 peregrines flying north over colonies
1	Kittiwake, Guillemot, Razorbill, Shag, Fulmar	Not specified	WK	50-100	1	N/A	2 people walking path/road
2	Kittiwake, Razorbill	Not specified	WK	N/A	1	N/A	people walking
2	Kittiwake, Razorbill	Not specified	SV	N/A	1	N/A	-
2	Kittiwake, Razorbill	Not specified	SV	N/A	1	N/A	-



Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
2	Kittiwake, Razorbill	Not specified	LV	N/A	1	N/A	-
2	Kittiwake, Razorbill	Not specified	LV	N/A	1	N/A	-
2	Kittiwake	19	WK	100-250	4	00:00:05	group walking
2	Razorbill	23	WK	100-250	4	00:00:22	group walking
3	Kittiwake	300+	SV	250-500	1	N/A	Fishing boat at speed. Came from distance and moved closer
3	Kittiwake	300+	ML	<50	1	N/A	Seal no reaction
3	Kittiwake	44	BI	<50	5	01:34:00	Raven
3	Kittiwake, Guillemot	72;19	WK	<50	5	00:03:50	2 WK
3	Kittiwake	Not specified	WK	<50	5	00:08:50	2 WK sat on pier
3	Kittiwake	300+	SV	250-500	1	N/A	Fishing vessel
3	Kittiwake	300+	WK	<50	1	N/A	2 WK
3	Kittiwake	104	ML	<50	4	00:29:00	Seal
3	Kittiwake	300+	WK	<50	1	N/A	2 WK
3	Kittiwake	300+	BI	<50	1	N/A	2 herring gull
3	Kittiwake	300+	LV	UN	1	N/A	-
3	Kittiwake	300+	SV	UN	1	N/A	-
3	Kittiwake	225	BI	<50	3	N/A	All SC4/5 alarming (herring gull)
3	Kittiwake	300+	WK	<50	1	N/A	-
3	Kittiwake	300+	SV	>500	1	N/A	Yacht
3	Kittiwake	300+	WK	<50	1	N/A	1 WK
3	Kittiwake	70-80	ML	<50	3	N/A	Seal
3	Kittiwake	300+	LV	>500	1	N/A	>1km
3	Kittiwake	300+	WK	<50	1	N/A	2 WK
3	Kittiwake	300+	WK	<50	1	N/A	1 WK
3	Kittiwake	300+	WK	<50	1	N/A	2 WK



Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
3	Kittiwake	300+	WK	<50	1	N/A	2 WK
3	Kittiwake	300+	ML	<50	1	N/A	Seal
3	Kittiwake	300+	WK	<50	1	N/A	1 WK
3	Kittiwake	15	BI	<50	5	00:02:05	Great black-backed gull. Alarming. SC5 15 birds mobbed it
3	Kittiwake	300+	SV	>500	1	N/A	Fishing boat
4	Kittiwake, Fulmar, Guillemot, Razorbill	12 KI	RR	<50	2	N/A	No flush: Male peregrine flying past around 12 kittiwake at SC5 raise heads
4	Kittiwake, Fulmar, Guillemot, Razorbill	12 KI	BI	<50	2	N/A	No flush; raven fly past. C. 12 kittiwake sc5 raise head
4	Not specified	Not specified	WK	50-100	1	N/A	Total 4 people walking by in tour 7
4	Kittiwake	30	UN	UN	5	00:01:15	Kittiwake c.30 flush/fly off SC5 and wheel around. No obvious stimulus
4	Kittiwake	Not specified	BI	<50	1	N/A	Hooded crow flew into base on inner SC5 area and seemed to be investigating / looking at kittiwake nests. No response
4	Kittiwake, Auk, Fulmar	Not specified	WK	50-100	1	N/A	total of 5 people walking paths in hour 2
4	Kittiwake, Guillemot, Razorbill, Fulmar	Not specified	WK	50-100	1	N/A	No flush; a total of 11 people walking path/track in hour 3. no response
4	Kittiwake, Guillemot,	Not specified	BW	50-100	1	N/A	A bird photographer sat on wall by path above SC4. No response



Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
	Razorbill, Fulmar, Shag						
4	Kittiwake, Guillemot, Razorbill, Shag, Fulmar	Not specified	WK	50-100	1	N/A	total of 4 people walking paths. No response.
4	Kittiwake, Guillemot, Razorbill, Shag, Fulmar	Not specified	BI	<50	1	N/A	adult great black-backed gull cruising cliffs around SC4/5 looking / searching. No response
4	Razorbill, Kittiwake, Guillemot	25; 15; 10	RR	<50	5	00:32:00	adult female peregrine attacked SC5 (inner) and attempted to catch razorbill. 25 razorbill, 15 kittiwake, 10 guillemot, flush off cliff and head to sea. peregrine sitting on cliff until 14:15. razorbill returning at / not by 14:15. peregrine still on cliff at end of hour 5 and razorbill still on water
4	Razorbill, Guillemot	25; 10	RR	50-100	5	01:00:00	Razorbill (25) and guillemot (10) still on water due to female peregrine on cliff at SC5 event started in hour 5. time flushed off nests in hour 6 calculated from 14:15 on. PE left cliff 14:50 razorbill and guillemot still on water at end hour 6 (15:15)
4	Kittiwake	Not specified	SV	50-100	1	N/A	small angling boat travelling north off pier/point. No flush of KI noted from SC6 (although not directly visible) and no response at SC5
4	Kittiwake	149	BW	100-250	1	N/A	Kittiwake undisturbed by distant BW
4	Kittiwake, Shag	13;4	UN	UN	2	N/A	-



Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
4	Kittiwake, Shag	46;13	AC	100-250	5	00:00:52	Low altitude light aircraft

Table 5.10 Full 2025 Disturbance Survey Results: SC5

Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
1	Kittiwake	18	RR	100-250	3	00:00:00	Peregrine flew past, going to and from nest
1	Kittiwake	35	UN	UN	4	00:00:25	N/A
1	Kittiwake	58	UN	UN	4	00:00:20	N/A
1	Kittiwake	60	UN	UN	1	00:00:00	N/A
1	Kittiwake	40	UN	UN	1	00:00:00	N/A
1	Kittiwake	18	UN	UN	3	00:00:00	N/A
2	Kittiwake	25+	BI	<50	3	00:00:00	Disturbance caused by herring gull attempting to predate kittiwake eggs
2	Kittiwake	15+	BI	50-100	3	00:00:00	Herring gull
3	Kittiwake/razorbill/guillemot	10/ 15/ 9	CE	100-250	5	00:01:00	N/A



Table 5.11 Full 2024 Disturbance Survey Results: SC8

Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
1	Kittiwake	6	RR	<50	2	N/A	Peregrine circled over colony
1	Kittiwake	10	RR	<50	2	N/A	Peregrine - around colony; perched above colony
1	Kittiwake	10	RR	<50	2	N/A	Peregrine still in area
1	Herring gull	2	RR	<50	2	N/A	Peregrine still in area
1	Kittiwake	4	RR	<50	4	N/A	2nd peregrine around calling - nesting pair
1	Not specified	Not specified	WK	100-250	1	N/A	distant walker
1	Razorbill	18	RR	<50	5	N/A	Peregrine attacking raven caused disturbance at razorbill colony
1	Not specified	Not specified	RR		1	N/A	Two peregrine sitting on cliffs
2	Kittiwake	Not specified	LV	>500	1	N/A	Fishing vessel heading away from SC8
2	Kittiwake	Not specified	LV	>500	1	N/A	Kittiwake undisturbed by LV
2	Kittiwake	Not specified	RR	<50	1	N/A	Peregrine flew in and landed on cliff
2	Kittiwake	Not specified	BI	<50	1	N/A	Raven chick calling from nest
2	Kittiwake	Not specified	BI	<50	1	N/A	adult raven perched on cliff top, calling
2	Kittiwake	Not specified	SV	100-250	1	N/A	small fishing boat passed by (rod + line)
2	Not specified	Not specified	SV	250-500	1	N/A	small boat#1 in convoy
2	Not specified	Not specified	SV	250-500	1	N/A	small boat #2 in convoy
2	Not specified	Not specified	SV	250-500	1	N/A	small sailboat
2	Not specified	Not specified	BI	<50	1	N/A	adult raven with food, chick calling, prey delivery
2	Kittiwake	Not specified	SV	250-500	1	N/A	-
2	Kittiwake, Peregrine, Raven	10; 2	SV	50-100	2	N/A	boat close, engine loud, raven flushed, peregrine called, kittiwakes turned heads
2	Kittiwake	Not specified	RR	<50	5	00:05:00	female peregrine came off nest (male on) her flight flushed all kittiwake on the eastern ledges, approx 20 guillemot also ten flushed. peregrine perched
2	Not specified	Not specified	SV	250-500	1	N/A	-
3	Not specified	Not specified	SV	100-250	1	N/A	-
3	Not specified	Not specified	SV	100-250	1	N/A	-



Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
3	Not specified	Not specified	SV	100-250	1	N/A	-
3	Not specified	Not specified	RR	<50	1	N/A	male peregrine arrives
3	Not specified	Not specified	SV	100-250	1	N/A	trawler
3	Not specified	Not specified	RR	<50	1	N/A	female peregrine arrives
3	Not specified	Not specified	SV	100-250	1	N/A	small vessel
3	Not specified	Not specified	RR	<50	1	N/A	both peregrine present
3	Not specified	Not specified	SV	>500	1	N/A	trawler
3	Not specified	Not specified	RR	<50	1	N/A	both peregrines remained at cliffs
3	Not specified	Not specified	RR	<50	1	N/A	both peregrines remained at cliffs
4	Not specified	Not specified	SV	>500	1	N/A	Male peregrine perched above colony from 09:00-13:40
4	Herring gull	Not specified	BI	<50	3	00:00:40	Male peregrine departed cliff at c. 13:40pm - no disturbance; great black-backed gull chased by herring gull
4	Kittiwake	Not specified	BI	<50	2	N/A	Male peregrine departed cliff at c. 13:40pm - no disturbance; great black-backed gull close to colony
4	Not specified	Not specified	SV	250-500	1	N/A	Peregrine circled over colony



Table 5.12 Full 2025 Disturbance Survey Results: SC8

Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
1	Kittiwake	All	BI	50-100	1	00:00:00	Raven
1	Kittiwake	17	BI	50-100	3	00:00:00	Raven
1	Kittiwake	0	SV	250-500	1	00:00:00	Yacht
1	Kittiwake	72	ML	<50	5	00:00:57	Seal
1	Kittiwake	7	BI	<50	3	00:00:00	Two hooded crow
1	Kittiwake	12	BI	<50	3	00:00:00	Three hooded crow
1	Kittiwake	0	WK	100-250	1	00:00:00	Two walkers at lighthouse
2	Kittiwake	0	SV	250-500	1	00:00:00	N/A
2	Kittiwake	20	BI	<50	4	00:00:20	Great black-backed gull
2	Kittiwake	0	SV	>500	1	00:00:00	N/A
2	Kittiwake/ razorbill/ guillemot	All	SV	<50	2	00:00:00	Fishing vessel
3	Kittiwake	0	SV	250-500	1	00:00:00	N/A
3	Kittiwake	0	SV	250-500	1	00:00:00	N/A
3	Kittiwake	All	CE	<50	3	00:00:00	Kayak under cliffs
3	Kittiwake	0	SV	<50	1	00:00:00	N/A
3	Kittiwake	0	SV	<50	1	00:00:00	N/A
3	Kittiwake	0	SV	250-500	1	00:00:00	N/A



Table 5.13 Full 2024 Disturbance Survey Results: SC9 and SC10

Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
1	Guillemot, Razorbill, Shag	50; 20; 10	RR	<50	1	N/A	Male and female peregrine over flight
1	Guillemot, Kittiwake	50; 20	BI	<50	1	N/A	2 raven over cliff above SC9 & 10
1	Guillemot, Kittiwake	50; 18	RR	<50	1	N/A	Male & Female peregrine over SC9
1	Razorbill, Guillemot	2; 14	BI	<50	3	N/A	Raven on cliff top above GU+RA
2	Kittiwake (SC9), Kittiwake (SC10), Fulmar (SC9), Fulmar (SC10), Razorbill, Shag, Guillemot, Lesser black-backed gull, Cormorant, Herring gull, Common gull, Great black-backed gull	162; 8; 25-30; 16; 8-10; 5-7; 204; 12; 6; 29; 6; 4; 16	BI	<50	5	01:15:00	male peregrine; who colony lifted
2	Kittiwake	75	ML	<50	3	N/A	grey seal
2	Not specified	Not specified	SV	100-250	1	N/A	fishing boat, no reaction by all species/individuals
2	Not specified	Not specified	SV	250-500	1	N/A	2x sail boats
2	Not specified	Not specified	SV	>500	1	N/A	2k boats (1 sail, 1 motor)
2	Kittiwake (SC9), Kittiwake (SC10)	26; 17	BI	<50	4	00:28:00	26 kittiwake alarm calling, 13 flying and mobbing great black-backed gull
2	Kittiwake	15	ML	100-250	3	N/A	15 kittiwake alarm calling and none flushed, more surprise effect of seals



Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
2	Not specified	Not specified	BI	<50	1	N/A	Lesser black-backed gull
2	Not specified	Not specified	SV	>500	1	N/A	Charter fishing boat out and sat throughout hour long survey
2	Not specified	Not specified	BI	<50	1	N/A	great black-backed gull - no reaction
2	Not specified	Not specified	BI	250-500	1	N/A	peregrine - no reaction; 2 flights
2	Kittiwake (SC9), Kittiwake (SC10)	5; 7	SV	100-250	4	00:29:00	5 kittiwake lifted heads; 7 kittiwake flushed; sailboat
2	Not specified	Not specified	SV	250-500	1	N/A	sailboat - no reaction
2	Kittiwake (SC9), Kittiwake (SC10)	17; 65	ML	<50	5	03:02:00	17 kittiwake from SC9 flushed for 182s, 65 kittiwake alarming at SC10; grey seal
3	Guillemot, Razorbill, Shag, Kittiwake	201; 20; 8; 140	SV	250-500	1	N/A	small sailing vessel, no reaction
3	Guillemot, Razorbill, Shag, Kittiwake	201; 20; 8; 140	LV	UN	1	N/A	large cargo vessel. No reaction
3	Guillemot, Razorbill, Shag, Kittiwake	201; 20; 8; 140	SV	100-250	1	N/A	small vessel, noisy engine, no reaction
3	Guillemot, Razorbill, Shag, Kittiwake	201; 20; 8; 140	AC	>500	1	N/A	light aircraft directly overhead. 750m ASL
3	Guillemot, Razorbill, Shag, Kittiwake	201; 20; 8; 140	AC	UN	1	N/A	light aircraft overhead. Height unknown
3	Guillemot, Razorbill, Shag, Kittiwake	201; 20; 8; 140	SV	100-250	1	N/A	small RIB, noisy engine, no reaction



Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
3	Guillemot, Razorbill, Shag, Kittiwake	201; 20; 8; 140	AC	100-250	1	N/A	light aircraft, overhead 750m. No reaction
3	Kittiwake, Shag, Guillemot, Razorbill	121; 8; 150; 15	BI	<50	4	00:00:30	5 herring gull swooping close to nests
3	Guillemot, Razorbill, Shag, Kittiwake	201; 20; 8; 140	FS	250-500	1	N/A	small fishing vessel, 500m away
3	Guillemot, Razorbill, Shag, Kittiwake	201; 20; 8; 100	RR	<50	3	N/A	peregrine chasing pigeons, kittiwake alarming
3	Guillemot, Razorbill, Shag, Kittiwake	201; 20; 8; 140	AC	UN	1	N/A	small aircraft overhead, followed by a second at 12:24
3	Guillemot, Razorbill, Shag, Kittiwake	201; 20; 8; 140	SV	250-500	1	N/A	small vessel, no reaction
3	Guillemot, Razorbill, Shag, Kittiwake	201; 20; 8; 140	FS	250-500	1	N/A	small fishing vessel.
3	Guillemot, Razorbill, Shag, Kittiwake	201; 20; 8; 140	AC	>500	1	N/A	small aircraft over VP. No reaction
3	Guillemot, Razorbill, Shag, Kittiwake	201; 20; 8; 140	AC	>500	1	N/A	small aircraft overhead.
3	Guillemot, Razorbill, Shag, Kittiwake	201; 20; 8; 140	AC	>500	1	N/A	small aircraft overhead.



Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
3	Guillemot, Razorbill, Shag, Kittiwake	201; 20; 8; 140	AC	>500	1	N/A	small aircraft overhead.
4	Kittiwake, Guillemot	126; 230	AC	250-500	1	N/A	Low altitude aircraft. No effect
4	Kittiwake	10	BI	<50	4	00:00:10	Lesser black-backed gull flushed 10 kittiwake, flying too close
4	Kittiwake	20	BI	<50	4	00:00:30	Lesser black-backed gull scattered 10 resting kittiwake
4	Kittiwake	126	AC	250-500	1	N/A	light aircraft, no reaction
4	Kittiwake, Guillemot	126; 230	SV	>500	1	N/A	small sailing vessel. No reaction
4	Kittiwake, Guillemot	126; 230	AC	250-500	1	N/A	light aircraft overhead.
4	Kittiwake	15	BI	<50	4	00:00:30	Lesser black-backed gull disturbed kittiwake x 15
4	Kittiwake, Guillemot	126; 230	SV	250-500	1	N/A	small sailing vessel. No reaction
4	Kittiwake, Guillemot	126; 230	SV	100-250	1	N/A	small vessel, travelling fast



Table 5.14 Full 2025 Disturbance Survey Results: SC10

Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
1	Kittiwake	0	RR	50-100	1	00:00:00	Peregrine flying south
1	Kittiwake	0	BI	50-100	1	00:00:00	Raven flying south
1	Kittiwake	0	SV	250-500	1	00:00:00	Sailing boat
1	Kittiwake	0	WK	250-500	1	00:00:00	Four walkers
1	Kittiwake	4	ML	<50	4	00:00:10	Seal
1	Kittiwake	0	ML	<50	1	00:00:00	Seal
2	Kittiwake	0	AC	>500	1	00:00:00	Light aircraft flying south 1,000m from colony
2	Kittiwake	0	AC	>500	1	00:00:00	Light aircraft flying south 1,000m from colony
2	Kittiwake	0	AC	>500	1	00:00:00	Light aircraft flying south 1,500m from colony
2	Kittiwake	0	SV	250-500	1	00:00:00	Sail boat
2	Kittiwake	0	AC	>500	1	00:00:00	Light aircraft flying south 1,000m from colony
2	Kittiwake	0	AC	>500	1	00:00:00	Light aircraft flying south 750m from colony, noisy
2	Kittiwake	0	AC	>500	1	00:00:00	Two aircraft 1,500-2,000m from colony. One flying north and one flying south
2	Kittiwake	0	AC	>500	1	00:00:00	Light aircraft flying north 1,000m from colony
2	Kittiwake	0	AC	>500	1	00:00:00	Light aircraft flying south 1,000-1,500m from colony
2	Kittiwake	0	SV	>500	1	00:00:00	Sailing boat
2	Kittiwake	0	SV	50-100	1	00:00:00	Fishing vessel
2	Kittiwake	0	SV	50-100	1	00:00:00	Fishing vessel
3	Kittiwake	0	SV	250-500	1	00:00:00	Sailing boat
3	Kittiwake	0	SV	250-500	1	00:00:00	Sailing boat



Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
3	Kittiwake/guillemot	10/ unspecified	CE	<50	5	00:00:30	Single sea kayak
3	Kittiwake/guillemot	120/ unspecified	SV	<50	3	00:00:00	Lobster fishing vessel
3	Kittiwake	0	SV	50-100	1	00:00:00	Lobster fishing vessel
3	Kittiwake	0	SV	<50	1	00:00:00	Lobster fishing vessel
3	Kittiwake	0	AC	>500	1	00:00:00	Disturbance caused by helicopter flying inland 2km from colony
3	Kittiwake	0	ML	<50	1	00:00:00	Seal
3	Kittiwake	0	SV	250-500	1	00:00:00	Sailing boat
3	Kittiwake	0	SV	250-500	1	00:00:00	Sailing boat
3	Kittiwake	149	ML	<50	3	00:00:00	Seal
3	Kittiwake	0	SV	250-500	1	00:00:00	Motorised boat



Table 5.15 Full 2024 Disturbance Survey Results: SC11

Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
1	Herring gull	7	RR	<50	5	00:01:12	Male peregrine carrying prey
1	Herring gull, Great black-backed gull	7; 2	AC	UN	4	00:00:27	-
1	Kittiwake	12	ML	<50	1	N/A	Porpoise
1	Kittiwake	12	RR	<50	1	N/A	Female kestrel
1	Kittiwake	12	ML	<50	1	N/A	Grey seal
1	Herring gull	5	ML	<50	1	N/A	Grey seal
2	Kittiwake	Not specified	SV	<50	3	N/A	yacht in convoy fishing vessel
2	Kittiwake	Not specified	ML	<50	3	N/A	-
2	Guillemot	Not specified	BI	<50	2	N/A	raven
2	Guillemot	Not specified	BI	<50	1	N/A	-
2	Not specified	Not specified	SV		1	N/A	-
2	Not specified	Not specified	BI		1	N/A	-
2	Shag	Not specified	SV	<50	1	N/A	-
2	Guillemot, Shag	Not specified	SV	<50	1	N/A	-
3	Not specified	Not specified	SV	250-500	1	N/A	-
3	Guillemot	5	ML	<50	4	N/A	agitated on rocks at water's edge
3	Kittiwake	3	SV	100-250	1	N/A	birds on water moved away



Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
3	Not specified	Not specified	ML	<50	1	N/A	-
3	Not specified	Not specified	SV	100-250	1	N/A	-
3	Not specified	Not specified	AC		1	N/A	passing overhead, no effect
3	Kittiwake	8	RR	<50	4	N/A	Probable birds from SC9 or SC10
3	Not specified	Not specified	LV	250-500	1	N/A	-
3	Shag	Not specified	SV		1	N/A	-
3	Not specified	Not specified	ML	<50	1	N/A	-
3	Guillemot	Not specified	SV	>500	1	N/A	No reaction to sailing vessel
3	Shag	Not specified	SV	>500	1	N/A	-
3	Not specified	Not specified	Oth	100-250	4	N/A	feeding frenzy on small fish, moving S-N
4	Not specified	Not specified	SV	>500	1	N/A	Beyond 500m buffer
4	Not specified	Not specified	RR	<50	2	N/A	flew over headland inland (photo)
4	Not specified	Not specified	LV	>500	1	N/A	Beyond 500m buffer
4	Not specified	Not specified	ML	<50	1	N/A	close to rocks
4	Not specified	Not specified	SV	250-500	1	N/A	-
4	Kittiwake	2	BI	<50	3	N/A	below cliff edge
4	Not specified	Not specified	SV	50-100	2	N/A	Birds on water dispersed



Table 5.16 Full 2025 Disturbance Survey Results: SC11

Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
1	Kittiwake	0	BI	<50	1	00:00:00	Raven
1	Kittiwake	0	BI	<50	1	00:00:00	Great black-backed gull
1	Kittiwake	0	BI	<50	1	00:00:00	Herring gull
1	Kittiwake	2	BI	<50	2	00:00:00	Great black-backed gull
1	Kittiwake	0	BI	100-250	1	00:00:00	Gannet
1	Kittiwake	0	BI	<50	1	00:00:00	Raven circling
1	Kittiwake	0	BI	<50	1	00:00:00	Two herring gull
1	Kittiwake	0	BI	<50	1	00:00:00	Herring gull
1	Kittiwake	3	SV	100-250	2	00:00:00	Yacht
1	Kittiwake	3	BI	<50	2	00:00:00	Two great black-backed gull
1	Kittiwake	0	BI	<50	1	00:00:00	Herring gull
1	Kittiwake	0	BI	100-250	1	00:00:00	Hooded crow
1	Kittiwake	0	BI	<50	1	00:00:00	Herring gull
1	Kittiwake	0	BI	50-100	1	00:00:00	Two great black-backed gull
1	Kittiwake	0	BI	<50	1	00:00:00	Great black-backed gull
1	Kittiwake	0	ML	<50	1	00:00:00	Seal
1	Kittiwake	2	BI	<50	2	00:00:00	Great black-backed gull
1	Kittiwake	0	BI	100-250	1	00:00:00	Two gannet
2	Kittiwake	0	AC	>500	1	00:00:00	Light aircraft >2,000m overhead
2	Kittiwake	0	BI	<50	1	00:00:00	Three gannet
2	Kittiwake	0	AC	>500	1	00:00:00	Light aircraft >2,000m overhead
2	Kittiwake	0	SV	250-500	1	00:00:00	Yacht
2	Guillemot	50	BI	<50	3	00:00:00	Two hooded crow
2	Kittiwake	0	LV	>500	1	00:00:00	Two container ships
2	Kittiwake	0	BI	>500	1	00:00:00	Two gannet
2	Kittiwake	0	LV	>500	1	00:00:00	Container ship
2	Kittiwake	0	AC	>500	1	00:00:00	Light aircraft >2,000m overhead
2	Kittiwake	0	BI	<50	1	00:00:00	Great black-backed gull



Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
2	Kittiwake	0	AC	250-500	1	00:00:00	>2,000m overhead
2	Kittiwake, Guillemot	2/ unspecified	BI	<50	5	00:00:24	Raven
2	Kittiwake	0	AC	>500	1	00:00:00	Two aircraft >2,000m overhead
2	Kittiwake	2	BI	>500	3	00:00:00	Four great black-backed gull
2	Kittiwake	0	LV	>500	1	00:00:00	Two large vessels; one car ferry and one container ship
2	Kittiwake	2	BI	<50	5	00:00:17	Two great black-backed gull
2	Kittiwake	0	AC	>500	1	00:00:00	Light aircraft >2,000m overhead
2	Kittiwake	2	BI	100-250	5	00:00:24	Four herring gull
2	Kittiwake	2	BI	<50	5	00:00:29	Herring gull
2	Kittiwake	0	SV	>500	1	00:00:00	Yacht
2	Kittiwake	0	BI	<50	1	00:00:00	Herring gull
2	Kittiwake	0	AC	>500	1	00:00:00	N/A
2	Kittiwake	2	BI	<50	3	00:00:00	Great black-backed gull
2	Kittiwake	0	AC	>500	1	00:00:00	Light aircraft >2,000m overhead
2	Kittiwake	5	BI	<50	5	00:00:16	Herring gull
2	Kittiwake	0	SV	250-500	1	00:00:00	Two small vessels; one yacht and one sailing boat
2	Kittiwake	0	BI	<50	1	00:00:00	Herring gull
2	Kittiwake	0	SV	250-500	1	00:00:00	Motorised fishing boat
2	Kittiwake, Guillemot, Shag, Razorbill	20+/ 50/ 8/ 5	SV	<50	5	00:01:09	Motorised fishing boat
2	Kittiwake	0	BI	<50	1	00:00:00	Three herring gull
2	Kittiwake	0	AC	>500	1	00:00:00	Light aircraft >2,000m overhead
3	Kittiwake	0	SV	>500	1	00:00:00	Two small vessels; one yacht and one fishing vessel
3	Kittiwake	0	BI	50-100	1	00:00:00	Herring gull
3	Kittiwake	0	BI	50-100	1	00:00:00	Two great black-backed gull



Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
3	Kittiwake	0	SV	>500	1	00:00:00	Yacht
3	Kittiwake	0	SV	250-500	1	00:00:00	Yacht
3	Kittiwake	0	AC	>500	1	00:00:00	N/A
3	Kittiwake	3	BI	<50	2	00:00:00	Great black-backed gull
3	Kittiwake	0	BI	100-250	1	00:00:00	Great black-backed gull
3	Kittiwake	0	BI	50-100	1	00:00:00	Two herring gull
3	Kittiwake	0	SV	>500	1	00:00:00	Yacht
3	Kittiwake	0	BI	50-100	1	00:00:00	Herring gull
3	Kittiwake	13	BI	<50	2	00:00:00	Two herring gull
3	Kittiwake	0	BI	250-500	1	00:00:00	Great black-backed gull
3	Guillemot	11	BI	50-100	2	00:00:00	Great black-backed gull
3	Kittiwake	0	AC	250-500	1	00:00:00	Helicopter
3	Kittiwake	0	SV	<50	1	00:00:00	Yacht
3	Kittiwake	5	BI	<50	2	00:00:00	Herring gull
3	Kittiwake	0	BI	50-100	1	00:00:00	Great black-backed gull
3	Kittiwake	0	BI	50-100	1	00:00:00	Herring gull
3	Kittiwake	0	SV	250-500	1	00:00:00	Yacht
3	Kittiwake	0	BI	50-100	1	00:00:00	Two herring gull
3	Kittiwake	4	BI	250-500	2	00:00:00	Great black-backed gull
3	Kittiwake	0	BI	250-500	1	00:00:00	Two gannet
3	Kittiwake	0	SV	>500	1	00:00:00	Fishing vessel
3	Kittiwake	0	BI	250-500	1	00:00:00	Herring gull
3	Kittiwake	0	BI	100-250	1	00:00:00	Herring gull
3	Kittiwake, Guillemot	4/ 50	BI	100-250	5	00:00:27	Gannet
3	Kittiwake	4	BI	100-250	5	00:00:22	Kittiwake mobbed gannet
3	Kittiwake	0	BI	100-250	1	00:00:00	Hooded crow (heard only)
3	Kittiwake	0	SV	>500	1	00:00:00	Yacht
3	Kittiwake	0	SV	>500	1	00:00:00	Fishing vessel
3	Kittiwake	4	BI	100-250	2	00:00:00	Gannet



Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
3	Kittiwake	0	RR	100-250	1	00:00:00	Buzzard
3	Kittiwake	0	BI	100-250	1	00:00:00	Species unknown

Table 5.17 Full 2024 Disturbance Survey Results: SC12

Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
1	Not specified	Not specified	LV	>500	1	N/A	No reaction
1	Not specified	Not specified	LV	>500	1	N/A	Far away and no reaction from any birds at sub-colonies
1	Not specified	Not specified	LV	>1km	1	N/A	Fishing. No reaction from any birds
1	Herring gull	6	RR	<50	5	00:01:15	peregrine Male with prey
1	Not specified	Not specified	RR	<50	1	N/A	kestrel, no reaction from any species. Passed directly over (0m) from SC13 along cliff top
1	Not specified	Not specified	ML	300-500	1	N/A	Porpoise moving through north to south. No disturbance reactions
1	Not specified	Not specified	LV	>500	1	N/A	Fishing vessel
1	Not specified	Not specified	RR	50-100	1	N/A	buzzard over cut grass field, after tractor left. Foraging in field. No reaction from any seabirds
3	Kittiwake	not recorded	SV	250-500	1	N/A	-
3	Kittiwake	not recorded	ML	<50	4/5	N/A	seal
3	Kittiwake	not recorded	SV	<50	1	N/A	-
3	Kittiwake	not recorded	BI	<50	1	N/A	hooded crow
3	Kittiwake	not recorded	BI	<50	1/2	N/A	herring gull
3	Kittiwake	not recorded	SV	<50	1	N/A	-
3	Kittiwake	Not specified	AC	250-500	1	N/A	-
3	Kittiwake	Not specified	RR	250-500	1	N/A	Co-hunting peregrine pair
3	Kittiwake	Not specified	ML	<50	1/2	N/A	seal
3	Kittiwake	Not specified	BI	<50	1	N/A	herring gull



Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
3	Kittiwake	Not specified	AC	250-500	1/2	N/A	-
3	Kittiwake	Not specified	AC	250-500	1	N/A	-
3	Kittiwake	Not specified	SV	<50	1	N/A	-
3	Kittiwake	Not specified	BI	<50	1	N/A	herring gull
3	Kittiwake	Not specified	BI	<50	1	N/A	herring gull
3	Kittiwake	Not specified	BI	50-100	1	N/A	herring gull
3	Kittiwake	Not specified	BI	<50	4/5	N/A	herring gull Mobbing/escorting
3	Kittiwake	Not specified	AC	250-500	1	N/A	-
3	Kittiwake	Not specified	BI	<50	1	N/A	herring gull
3	Kittiwake	Not specified	BI	<50	1	N/A	great black-backed gull
3	Kittiwake	Not specified	BI	<50	1	N/A	herring gull
3	Kittiwake	Not specified	BI	<50	1	N/A	great black-backed gull
3	Kittiwake	Not specified	AC	250-500	1	N/A	-
3	Kittiwake	Not specified	BI	<50	1	N/A	great black-backed gull
3	Kittiwake	Not specified	BI	<50	1	N/A	herring gull



Table 5.18 Full 2025 Disturbance Survey Results: SC12

Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
1	Kittiwake	0	BI	50-100	1	00:00:00	Two herring gull passing along cliffs
1	Kittiwake	0	BI	50-100	1	00:00:00	Two herring gull soaring cliff updrafts
1	Kittiwake	0	BI	50-100	1	00:00:00	Three great black-backed gull passing high over cliffs
1	Kittiwake	0	BI	<50	1	00:00:00	Two hooded crow prospecting along cliff top
1	Kittiwake	0	BI	<50	1	00:00:00	Herring gull
1	Kittiwake	0	BI	50-100	1	00:00:00	11 herring gull riding updrafts
1	Kittiwake	10	BI	<50	2	00:00:00	Two raven prospecting while passing through
1	Kittiwake	10	RR	<50	2	00:00:00	Red kite passing along cliff top
1	Kittiwake	0	BI	50-100	1	00:00:00	Gannet
1	Kittiwake	0	BI	<50	1	00:00:00	Herring gull
1	Kittiwake	0	BI	<50	1	00:00:00	Gannet
1	Kittiwake	0	SV	250-500	1	00:00:00	Yacht
1	Kittiwake	0	BI	<50	1	00:00:00	Herring gull loitering and cliff between sub-colonies
1	Kittiwake	0	BI	<50	1	00:00:00	Herring gull passing over
1	Kittiwake	0	BI	50-100	1	00:00:00	Two herring gull high overhead
1	Kittiwake	50+	BI	50-100	2	00:00:00	Great black-backed gull
1	Kittiwake	0	BI	<50	1	00:00:00	Herring gull passing
1	Kittiwake	0	BI	<50	1	00:00:00	Herring gull
1	Kittiwake	0	BI	<50	1	00:00:00	Two herring gull
1	Kittiwake	0	BI	<50	1	00:00:00	Herring gull
1	Kittiwake	0	BI	<50	1	00:00:00	Herring gull
1	Kittiwake	0	BI	50-100	1	00:00:00	Great black-backed gull
1	Kittiwake	0	BI	100-250	1	00:00:00	Herring gull
1	Kittiwake	0	BI	<50	1	00:00:00	Herring gull
1	Kittiwake	0	BI	<50	1	00:00:00	Herring gull
1	Kittiwake	0	BI	50-100	1	00:00:00	Great black-backed gull
2	Kittiwake	0	BI	50-100	1	00:00:00	Herring gull
2	Kittiwake	0	AC	100-250	1	00:00:00	N/A



Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
2	Kittiwake	0	AC	250-500	1	00:00:00	N/A
2	Kittiwake	0	ML	<50	1	00:00:00	Grey seal
2	Kittiwake	0	SV	250-500	1	00:00:00	N/A
2	Kittiwake	0	BI	<50	1	00:00:00	Herring gull
2	Kittiwake	0	BI	<50	1	00:00:00	Three herring gull
2	Kittiwake	0	BI	<50	1	00:00:00	Herring gull
2	Kittiwake	0	BI	<50	1	00:00:00	Herring gull
2	Kittiwake	0	AC	100-250	1	00:00:00	N/A
2	Kittiwake	0	BI	<50	1	00:00:00	Two raven
2	Kittiwake	0	AC	100-250	1	00:00:00	N/A
2	Kittiwake	0	AC	250-500	1	00:00:00	N/A
2	Kittiwake	0	BI	<50	1	00:00:00	Three herring gull
2	Kittiwake	0	SV	>500	1	00:00:00	2km+
2	Kittiwake	0	AC	250-500	1	00:00:00	N/A
2	Kittiwake	0	BI	<50	1	00:00:00	Herring gull
2	Kittiwake	0	SV	>500	1	00:00:00	1km+
2	Kittiwake	0	BI	250-500	1	00:00:00	Great black-backed gull
2	Kittiwake	0	BI	50-100	1	00:00:00	Herring gull
2	Kittiwake	0	BI	50-100	1	00:00:00	Herring gull
2	Kittiwake	0	SV	100-250	1	00:00:00	N/A
2	Kittiwake	0	BI	50-100	1	00:00:00	Herring gull
2	Kittiwake	0	AC	250-500	1	00:00:00	N/A
3	Kittiwake	0	BI	<50	1	00:00:00	Herring gull
3	Kittiwake	0	BI	<50	1	00:00:00	Herring gull
3	Kittiwake	0	SV	>500	1	00:00:00	N/A
3	Kittiwake	0	BI	<50	1	00:00:00	Herring gull
3	Kittiwake	0	BI	<50	1	00:00:00	Herring gull
3	Kittiwake	0	SV	<50	1	00:00:00	N/A
3	Kittiwake	0	BI	50-100	1	00:00:00	Two herring gull
3	Kittiwake	0	BI	50-100	1	00:00:00	Herring gull



Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
3	Kittiwake	0	BI	<50	1	00:00:00	Great black-backed gull
3	Kittiwake	0	AC	>500	1	00:00:00	Helicopter
3	Kittiwake	0	BI	<50	1	00:00:00	Hooded crow
3	Guillemot	3	BI	<50	2	00:00:00	Hooded crow on top of cliff, harassing guillemot
3	Kittiwake	2	BI	<50	2	00:00:00	Two herring gull
3	Kittiwake	0	BI	<50	1	00:00:00	Herring gull
3	Kittiwake, Guillemot, Razorbill	All	RR	<50	3	00:00:00	Peregrine successfully took prey (guillemot and razorbill)
3	Kittiwake	0	BI	<50	1	00:00:00	Herring gull
3	Kittiwake	0	BI	<50	1	00:00:00	Hooded crow
3	Kittiwake	0	SV	>500	1	00:00:00	N/A
3	Kittiwake	0	BI	<50	1	00:00:00	Herring gull
3	Kittiwake	0	RR	250-500	1	00:00:00	Buzzard inland



Table 5.19 Full 2024 Disturbance Survey Results: SC13

Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
1	Not specified	Not specified	LV	>500	1	N/A	No reaction
1	Not specified	Not specified	LV	>500	1	N/A	Far away and no reaction from any birds at sub-colonies
1	Not specified	Not specified	LV	>1km	1	N/A	Fishing. No reaction from any birds
1	Not specified	Not specified	RR	0-50	1	N/A	kestrel, no reaction from any species. Passed directly over (0m) from SC13 along cliff top
1	Not specified	Not specified	ML	300-500	1	N/A	Porpoise moving through north to south. No disturbance reactions
1	Not specified	Not specified	LV	>500	1	N/A	Fishing vessel
1	Not specified	Not specified	RR	50-100	1	N/A	buzzard over cut grass field, after tractor left. Foraging in field. No reaction to any seabirds
2	Kittiwake	13	SV	250-500	1	N/A	Sports fishing
2	Kittiwake	13	SV	250-500	1	N/A	Small boat
2	Kittiwake	12	SV	250-500	1	N/A	Small boat
2	Kittiwake	12	SV	100-250	1	N/A	Fishing boat
2	Kittiwake	12	ML	100-250	1	N/A	Grey seal
2	Kittiwake	14	SV	>500	1	N/A	Fishing boat
2	Kittiwake	14	ML	100-250	1	N/A	grey seal
2	Kittiwake	12	SV	>500	1	N/A	Sports fishing
2	Kittiwake	12	SV	100-250	1	N/A	sailing boat
3	Kittiwake	Not specified	SV	250-500	1	N/A	-
3	Kittiwake	Not specified	SV	<50	1	N/A	-
3	Kittiwake	Not specified	BI	<50	1	N/A	hooded crow
3	Kittiwake	Not specified	BI	<50	1/2	N/A	herring gull
3	Kittiwake	Not specified	SV	<50	1	N/A	-
3	Kittiwake	Not specified	AC	250-500	1	N/A	-
3	Kittiwake	Not specified	RR	250-500	1	N/A	Co-hunting peregrine pair
3	Kittiwake	Not specified	ML	<50	1/2	N/A	Seal
3	Kittiwake	Not specified	BI	<50	1	N/A	Herring gull



Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
3	Kittiwake	Not specified	AC	250-500	1/2	N/A	-
3	Kittiwake	Not specified	AC	250-500	1	N/A	-
3	Kittiwake	Not specified	SV	<50	1	N/A	-
3	Kittiwake	Not specified	BI	<50	1	N/A	herring gull
3	Kittiwake	Not specified	BI	<50	1	N/A	herring gull
3	Kittiwake	Not specified	BI	50-100	1	N/A	herring gull
3	Kittiwake	Not specified	BI	<50	4/5	N/A	herring gull Mobbing/escorting
3	Kittiwake	Not specified	AC	250-500	1	N/A	-
3	Kittiwake	Not specified	BI	<50	1	N/A	herring gull
3	Kittiwake	Not specified	BI	<50	1	N/A	great black-backed gull
3	Kittiwake	Not specified	BI	<50	1	N/A	herring gull
3	Kittiwake	Not specified	BI	<50	1	N/A	great black-backed gull
3	Kittiwake	Not specified	AC	250-500	1	N/A	-
3	Kittiwake	Not specified	BI	<50	1	N/A	great black-backed gull
3	Kittiwake	Not specified	BI	<50	1	N/A	herring gull
4	Kittiwake	10;13	AC	250-500	1	N/A	SC12 empty, apparent failure
4	Kittiwake	10	BI	<50	1	N/A	-
4	Kittiwake	10;3	BI	250-500	1	N/A	buzzard x 2 soaring high
4	Kittiwake	13;13	ML	<50	1	N/A	passing through
4	Kittiwake	15;14	BI	<50	1	N/A	passing through over water
4	Kittiwake	15;12	BI	<50	1	N/A	passing through over water
4	Kittiwake	15;13	BI	<50	1	N/A	Travelling over clifftop
4	Kittiwake	13;12	BI	<50	1	N/A	Passing through
4	Kittiwake	13;12	BI	<50	1	N/A	Passing through
4	Kittiwake	13;12	SV	>500	1	N/A	-
4	Kittiwake	13;13	BI	<50	1	N/A	Passing through
4	Kittiwake	11;12	BI	<50	1	N/A	Passing through
4	Kittiwake	11;12	AC	100-250	1	N/A	-
4	Kittiwake	12;12	ML	<50	2	N/A	Passing through, bobbing on water
4	Kittiwake	12;12	BI	50-100	1	N/A	-



Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
4	Kittiwake	12;12	BI	<50	1	N/A	Passing across cliff face
4	Kittiwake	12;12	BI	50-100	1	N/A	Passing overhead high
4	Kittiwake	12	AC	250-500	2	N/A	Turned head to look up briefly
4	Kittiwake	12;12	BI	<50	1	N/A	gannet x2
4	Kittiwake	12	BI	50-100	2	N/A	Turned head to glance up
4	Kittiwake	12;12	BI	50-100	1	N/A	-
4	Kittiwake	11;12	AC	250-500	1	N/A	-
4	Kittiwake	12;12	BI	50-100	1	N/A	Passing overhead
4	Kittiwake	12;12	BI	<50	1	N/A	Passing overhead
4	Kittiwake	10;11	SV	>500	1	N/A	-
4	Kittiwake	11;10	BI	<50	1	N/A	Circling overhead
4	Kittiwake	11;11	SV	50-100	1	N/A	-
4	Kittiwake	11;10	BI	50-100	1	N/A	Passing high overhead



Table 5.20 Full 2025 Disturbance Survey Results: SC13

Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
1	Kittiwake	0	BI	50-100	1	00:00:00	Two herring gull passing along cliffs
1	Kittiwake	0	BI	50-100	1	00:00:00	Two herring gull soaring cliff updrafts
1	Kittiwake	0	BI	50-100	1	00:00:00	Three great black-backed gull passing high over cliffs
1	Kittiwake	0	BI	<50	1	00:00:00	Herring gull
1	Kittiwake	0	BI	50-100	1	00:00:00	11 herring gull riding updrafts
1	Kittiwake	10	BI	<50	2	00:00:00	Two raven prospecting while passing through
1	Kittiwake	10	RR	<50	2	00:00:00	Red kite passing along cliff top
1	Kittiwake	0	BI	50-100	1	00:00:00	Gannet
1	Kittiwake	0	BI	<50	1	00:00:00	Herring gull
1	Kittiwake	0	BI	<50	1	00:00:00	Gannet
1	Kittiwake	0	SV	250-500	1	00:00:00	Yacht
1	Kittiwake	0	BI	<50	1	00:00:00	Herring gull loitering on cliff between sub-colonies
1	Kittiwake	0	BI	<50	1	00:00:00	Herring gull passing over
1	Kittiwake	0	BI	50-100	1	00:00:00	Two herring gull high overhead
1	Kittiwake	50+	BI	50-100	2	00:00:00	Great black-backed gull
1	Kittiwake	0	BI	<50	1	00:00:00	Herring gull passing
1	Kittiwake	0	BI	<50	1	00:00:00	Herring gull
1	Kittiwake	0	BI	<50	1	00:00:00	Two herring gull
1	Kittiwake	0	BI	<50	1	00:00:00	Herring gull
1	Kittiwake	0	BI	50-100	1	00:00:00	Great black-backed gull
1	Kittiwake	0	BI	<50	1	00:00:00	Herring gull
1	Kittiwake	0	BI	100-250	1	00:00:00	Herring gull
1	Kittiwake	0	BI	<50	1	00:00:00	Herring gull
1	Kittiwake	0	BI	<50	1	00:00:00	Herring gull
1	Kittiwake	0	BI	50-100	1	00:00:00	Great black-backed gull
2	Kittiwake	0	BI	50-100	1	00:00:00	Herring gull
2	Kittiwake	0	AC	100-250	1	00:00:00	N/A
2	Kittiwake	0	AC	250-500	1	00:00:00	N/A



Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
2	Kittiwake	0	ML	<50	1	00:00:00	Grey seal
2	Kittiwake	0	SV	250-500	1	00:00:00	N/A
2	Kittiwake	0	BI	<50	1	00:00:00	Herring gull
2	Kittiwake	0	BI	<50	1	00:00:00	Three herring gull
2	Kittiwake	0	BI	<50	1	00:00:00	Herring gull
2	Kittiwake	1	AC	100-250	2	00:00:00	N/A
2	Kittiwake	0	BI	<50	1	00:00:00	Herring gull
2	Kittiwake	0	AC	100-250	1	00:00:00	N/A
2	Kittiwake	0	BI	<50	1	00:00:00	Two raven
2	Kittiwake	0	AC	100-250	1	00:00:00	N/A
2	Kittiwake	0	AC	250-500	1	00:00:00	N/A
2	Kittiwake	0	BI	<50	1	00:00:00	Three herring gull
2	Kittiwake	0	SV	>500	1	00:00:00	2km+
2	Kittiwake	0	AC	250-500	1	00:00:00	N/A
2	Kittiwake	0	BI	<50	1	00:00:00	Herring gull
2	Kittiwake	0	SV	>500	1	00:00:00	1km+
2	Kittiwake	0	BI	250-500	1	00:00:00	Great black-backed gull
2	Kittiwake	0	BI	50-100	1	00:00:00	Herring gull
2	Kittiwake	0	BI	50-100	1	00:00:00	Herring gull
2	Kittiwake	0	SV	100-250	1	00:00:00	N/A
2	Kittiwake	0	BI	50-100	1	00:00:00	Herring gull
2	Kittiwake	0	AC	250-500	1	00:00:00	N/A
3	Kittiwake	0	BI	<50	1	00:00:00	Herring gull
3	Kittiwake	0	BI	<50	1	00:00:00	Herring gull
3	Kittiwake	0	SV	>500	1	00:00:00	N/A
3	Kittiwake	0	BI	50-100	1	00:00:00	Two herring gull
3	Kittiwake	0	BI	50-100	1	00:00:00	Herring gull
3	Kittiwake	0	AC	>500	1	00:00:00	Helicopter
3	Kittiwake	0	BI	<50	1	00:00:00	Herring gull



Survey	Species	No. birds affected	Stimuli	Distance of stimuli (m)	Level of response	Time flushed (hh:mm:ss)	Notes
3	Kittiwake/ guillemot/ razorbill	All	RR	<50	3	00:00:00	Peregrine successfully took prey (guillemot and razorbill)
3	Kittiwake	0	BI	<50	1	00:00:00	Herring gull
3	Kittiwake	0	BI	<50	1	00:00:00	Hooded crow
3	Kittiwake	0	SV	>500	1	00:00:00	N/A
3	Kittiwake	0	BI	<50	1	00:00:00	Herring gull
3	Kittiwake	0	RR	250-500	1	00:00:00	Buzzard inland



Appendix B: Full Census Survey Results 2023 to 2025

The following tables present the full results from the census surveys at the Wicklow Head SPA between 2023 and 2025. Results for 2018-2022 are presented in Tierney (2022), NPWS (2022) and on the SMP (2026) database.

Table 5.21 2023 Wicklow Head kittiwake colony census results (Cork Ecology, 2023).

Survey date	Survey type	Colony AON count
07/06/2023	Boat-based	645
08/06/2026	Land-based	
16/06/2023	Boat-based	631
20/06/2023	Land-based	
Peak count		645



Table 5.22 2024 Wicklow Head kittiwake colony census results.

Sub-colony	Land-based				Boat-based				Overall Count	
	29/05/24		12/06/24		04/06/24		14/06/24		29/05/24 and 04/06/24	
	AON	Trace	AON	Trace	AON	Trace	AON	Trace	AON	Trace
SC1	103	6	90	8	-	-	-	-	103	6
SC2	29	4	46	0	-	-	-	-	29	4
SC3	37	0	34	0	-	-	-	-	37	0
SC4	188	0	167	9	-	-	-	-	188	0
SC5	105	4	105	7	-	-	-	-	105	4
SC6	-	-	-	-	135	17	134	15	135	17
SC7	-	-	-	-	0	0	0	0	0	0
SC8	95	9	109	3	-	-	-	-	95	9
SC9	105	6	85	2	-	-	-	-	105	6
SC10	6	0	5	0	-	-	-	-	6	0
SC11	2	4	0	1	-	-	-	-	2	4
SC12	6	3	6	2	-	-	-	-	6	3
SC13	8	0	18	4	-	-	-	-	8	0
SC14	-	-	-	-	32	3	39	3	32	3
SC15	-	-	-	-	0	0	0	0	0	0
Total	684	36	665	36	167	20	173	18	851	56



Table 5.23 2025 Wicklow Head kittiwake colony census results.

Sub-colony	Land-based census				Boat-based census				Peak Count	
	Visit 1		Visit 2		Visit 1		Visit 2		AON	TRA
	AON	TRA	AON	TRA	AON	TRA	AON	TRA	AON	TRA
SC1	119	0	121	9	-	-	-	-	121	9
SC2	0	0	45	5	-	-	-	-	45	5
SC3	93	0	55	1	-	-	-	-	55	1
SC4	218	0	271	14	-	-	-	-	271	14
SC5	151	0	104	12	-	-	-	-	104	12
SC6	-	-	-	-	176	0	182	14	182	14
SC7	-	-	-	-	84	0	0	0	0	0
SC8	0	0	59	10	-	-	-	-	59	10
SC9	-	-	-	-	27	0	78	3	78	3
SC10	79	0	92	7	-	-	-	-	92	7
SC11	-	-	-	-	0	0	0	0	0	0
SC12	0	0	0	0	-	-	-	-	0	0
SC13	56	0	27	1	-	-	-	-	27	1
SC14	-	-	-	-	51	0	42	5	42	5
SC15	0	0	0	0	-	-	-	-	0	0
Other	-	-	-	-	-	-	1	0	1	0
Total	716	0	774	59	338	0	303	22	1,077	81



Appendix C: Full Productivity Survey

Results 2023 to 2025

The following tables present the full results from productivity surveys at Wicklow Head SPA in 2025. Full results for 2018-2022 are presented in Tierney (2022), full 2023 results are presented in Cork Ecology (2023), and full 2024 results are presented in GoBe (2024).

Table 5.24 Wicklow Head kittiwake productivity results 2023 (Cork Ecology, 2023).

Sub-colony	2023 Number of AONs monitored	Number of failed nests	Number of chicks considered to have fledged	Productivity
SC1	56	53	5	0.09
SC2	18	18	0	0.00
SC4	81	53	42	0.52
SC5	41	41	0	0.00
SC8	37	25	23	0.62
SC10	67	28	65	0.97
SC13	19	19	0	0.00
Total	319	237	135	Mean 0.31 (± 0.15)

Table 5.25 Wicklow Head kittiwake productivity results 2024 (GoBe Consultants, 2024).

Sub-colony	Number of AONs monitored for productivity	Number of failed nests	Number of chicks considered to have fledged	Productivity rate (±SD)
SC1	50	18	44	0.88
SC2	30	13	25	0.82
SC3	37	18	18	0.47
SC4	89	12	65	0.73
SC5	29	3	26	0.90
SC8	35	11	36	1.03
SC10	81	27	51	0.63
SC11	6	6	0	0.00
SC12	6	6	0	0.00
SC13	14	8	9	0.64
Total	377	122	273	0.72 (± 0.13)



Table 5.26 Wicklow Head kittiwake productivity results 2025.

Sub-colony	Number of AONs monitored for productivity	Number of failed nests	Number of chicks considered to have fledged	Productivity rate
SC1	-	-	-	-
SC2	-	-	-	-
SC3	-	-	-	-
SC4	-	-	-	-
SC5	43	23	13	0.30
SC8	35	10	23	0.66
SC10	-	-	-	-
SC11	-	-	-	-
SC12	-	-	-	-
SC13	-	-	-	-
Total	78	33	36	0.48 (± 0.06)

Table 5.27 2024 Wicklow Head kittiwake brood sizes by sub-colony (Visit 2, early July).

Sub-colony	No. of nests with brood size of:			Average brood size
	1	2	3	
SC1	14	26	2	1.71
SC2	6	11	1	1.72
SC3	12	7	0	1.37
SC4	31	49	1	1.63
SC5	14	14	2	1.60
SC8	5	16	0	1.76
SC10	25	27	1	1.55
SC13	2	5	0	1.71
Total	109	155	7	1.62 (Mean)

Table 5.28 2025 Kittiwake brood sizes by SC (Visit 3, July 2025).

Sub-colony	No. of nests with brood size of:			Average brood size
	1	2	3	
SC5	15	6	0	1.29
SC8	3	21	0	1.88
Total	18	27	0	1.58 (Mean)



Table 5.29 2023 Wicklow Head estimated success rates of breeding pairs of kittiwake by SC and brood size (Cork Ecology, 2023).

Sub-colony	No. of nests with brood size of:		
	1	2	3
SC1	1	2	0
SC4	16	10	2
SC8	3	7	2
SC10	14	24	1
Total	34	43	5
Percentage	41.5%	52.4%	6.1%

Table 5.30 2024 Wicklow Head estimated success/failure rates of breeding pairs of kittiwakes by SC based on the outcomes of AONs monitored for productivity.

Sub-colony	Succeeded	Failed	Total Pairs	AON failure rate
SC1	32	18	50	36.0%
SC2	17	13	30	43.3%
SC3	19	18	37	48.6%
SC4	77	12	89	13.5%
SC5	26	3	29	10.3%
SC8	24	11	35	31.4%
SC10	54	27	81	33.3%
SC11	0	6	6	100.0%
SC12	0	6	6	100.0%
SC13	6	8	14	57.1%
Total	255	122	377	32.4%

Table 5.31 2025 Wicklow Head estimated success/ failure rates of breeding pairs of kittiwake by SC based on the outcomes of AON monitored for productivity.

Sub-colony	AON	Succeeded	Failed	AON failure rate
SC5	43	20	23	53.5%
SC8	35	25	10	28.6%
Total	78	45	33	42.3%



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